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The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION
BOARD

IN THE MATTER OF THE GAS RESOURCES PRESERVATION ACT

AND IN THE MATTER of a Joint Hearing to determine various questions
relating to the proposed Export of Natural Gas from the Province of Alberta.

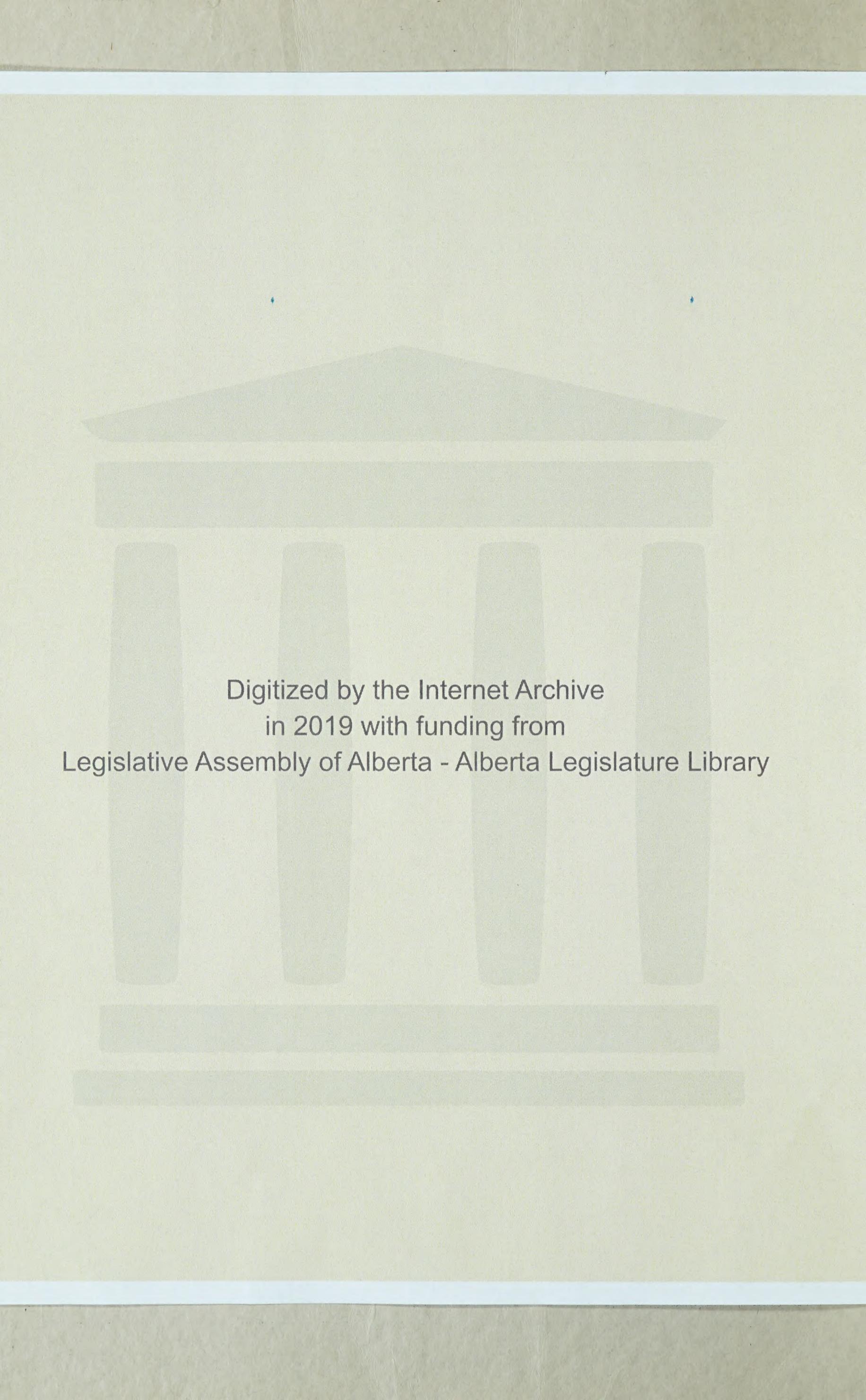
I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session: December 14th, 1951.

Volume 34.

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I N D E X

VOLUME 34.

14 December 1951.

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MEETING

Leve
DCE

Ministre de l'Intérieur et Secrétaire d'Etat à la Sécurité publique et au Développement social

Ministre des Finances et du Budget et Secrétaire d'Etat à l'Industrie et au Commerce extérieur

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William B. Poor,
Dir. Ex. by Mr. McDonald.

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14 December 1951.

WILLIAM B. POOR, recalled,
already sworn, examined by Mr. McDonald, testified as follows:

MR. McDONALD: Mr. Chairman, before Mr.

Poor commences his evidence, I would like to make a statement for the information of the Board.

(1) The Board will recollect that as set out in the Amended Application of the Westcoast Company the proposal by Westcoast to transmit gas from Pincher Creek to the Inland Empire area was prepared and submitted solely to provide means for the economical development of the Pincher Creek field so that gas would be made available for the supply of any deficiency in the requirements of the Canadian Western System after 1958 as suggested by the Board in its Interim Report.

(2) In the event the Board should determine that the deficiency in the requirements of the Canadian Western System can be met in any other manner and that Pincher Creek gas can more appropriately be made available to supply some market other than the Spokane area, then as I stated on November 19th, the Westcoast Company can serve the greater part of such market from its Peace River line to the Pacific Coast.

The exhibit now submitted by Mr. Poor, based on the evidence already presented to the Board, shows the combined market, consolidated costs and consolidated transportation rates applicable to the increased facilities of

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ALL INFORMATION CONTAINED

HEREIN IS UNCLASSIFIED

WILLIAM J. BROWN

William J. Brown, 40, was born in New York City on January 1, 1918, and is a resident of Bronxville, Bronx County, New York.

He is a son of John J. Brown, 65, and his wife, Mary, 62, who are residents of Bronxville. He has three children, all of whom are married, and two brothers, John and James, both of whom are residents of Bronxville.

Brown is a graduate of Bronx High School and attended Columbia University, where he received a Bachelor of Arts degree in 1939.

He is a member of the Bronx Chapter of the American Legion and is a past commander of the Bronx Legion Post No. 100.

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William B. Poor,
Dir. Ex. by Mr. McDonald.

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of the Peace River line constructed to serve both the Pacific Coast markets and the Spokane area markets including Trail, B.C., and Hanford.

The evidence will show that the proposed line can be expanded economically to a capacity of 400 million cubic feet per day. A line of this size is projected because of the faith of the Westcoast Company in the potential production of the Peace River area and the potential markets to be served by gas produced therein. At this stage of development of the Peace River area the Westcoast Company is prepared to accept a permit from the Board limiting the requirements of the line to 42 billion cubic feet per annum. The evidence will show the basis for that statement, Mr. Chairman. We have the exhibit "Pipeline project to Pacific Northwest, Revisions to Report dated October 25th, 1951, to provide Natural Gas Service to the Inland Empire Market from Peace River - Pacific Northwest Pipe Line Project".

SUBMISSION, PIPELINE PROJECT
TO PACIFIC NORTHWEST PUT IN
AND MARKED EXHIBIT 120.

Q In this Exhibit 120, Mr. Poor, you will deal with the exhibit except for design of pipeline, which will be put in by Dr. Hetherington?

A That is correct.

Q Will you now read the first page and then proceed?

A WESTCOAST TRANSMISSION COMPANY LIMITED
PIPELINE PROJECT TO THE PACIFIC NORTHWEST

There has been filed with the Alberta Petroleum and Natural Gas Conservation Board two reports prepared

William B. Root
Dir. Ex. Ad M. Johnson

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and this same point can
be fully explained under the heading of the
"Principle of Conservation of Energy".
This principle states that "Energy can
neither be created nor destroyed, but
can only be converted from one form to another".
Thus, if we consider the energy available
in the sun's rays, it is evident that this
energy must come from some other source.
The source of this energy is the sun.
The sun's rays are composed of
light waves which travel through
space at a speed of approximately
186,000 miles per second.
These light waves are emitted by the sun
as a result of the conversion of
chemical energy stored in the sun's body.
The sun's body is composed of
hydrogen and helium gases,
which are constantly being
converted into energy by nuclear
fission.

SUMMARY OF THEORIES

The two main theories concerning the origin of the sun's energy are the "Nuclear Fission Theory" and the "Nuclear Fusion Theory".
The Nuclear Fission Theory states that the sun's energy is derived from the conversion of heavy elements into lighter elements.
The Nuclear Fusion Theory states that the sun's energy is derived from the conversion of light elements into heavier elements.

WATERSHED COMPANY LIMITED

THE PUBLIC RELATIONS DEPARTMENT

This document was prepared by the Public Relations Department of Watershed Company Limited for internal distribution only.

William B. Poor,
Dir. Ex. by Mr. McDonald.

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by Ford, Bacon & Davis, Engineers, dated October 25th, 1951, as follows:

PIPELINE PROJECT TO PACIFIC NORTHWEST (Exhibit 44)
PIPELINE PROJECT TO INLAND EMPIRE (Exhibit 51)

In accordance with Mr. McDonald's statement to the Board on November 19th (Transcript page 1668-9) there is set out herein revised estimates which have been made in order to provide natural gas service to the Inland Empire area, including Trail, from the Peace River-Pacific Northwest pipeline project. These revisions are made under the following headings:

Market for natural gas
Inland Empire
Pipeline route
Design of pipeline
Summary of Estimated Construction Costs
Transportation rates

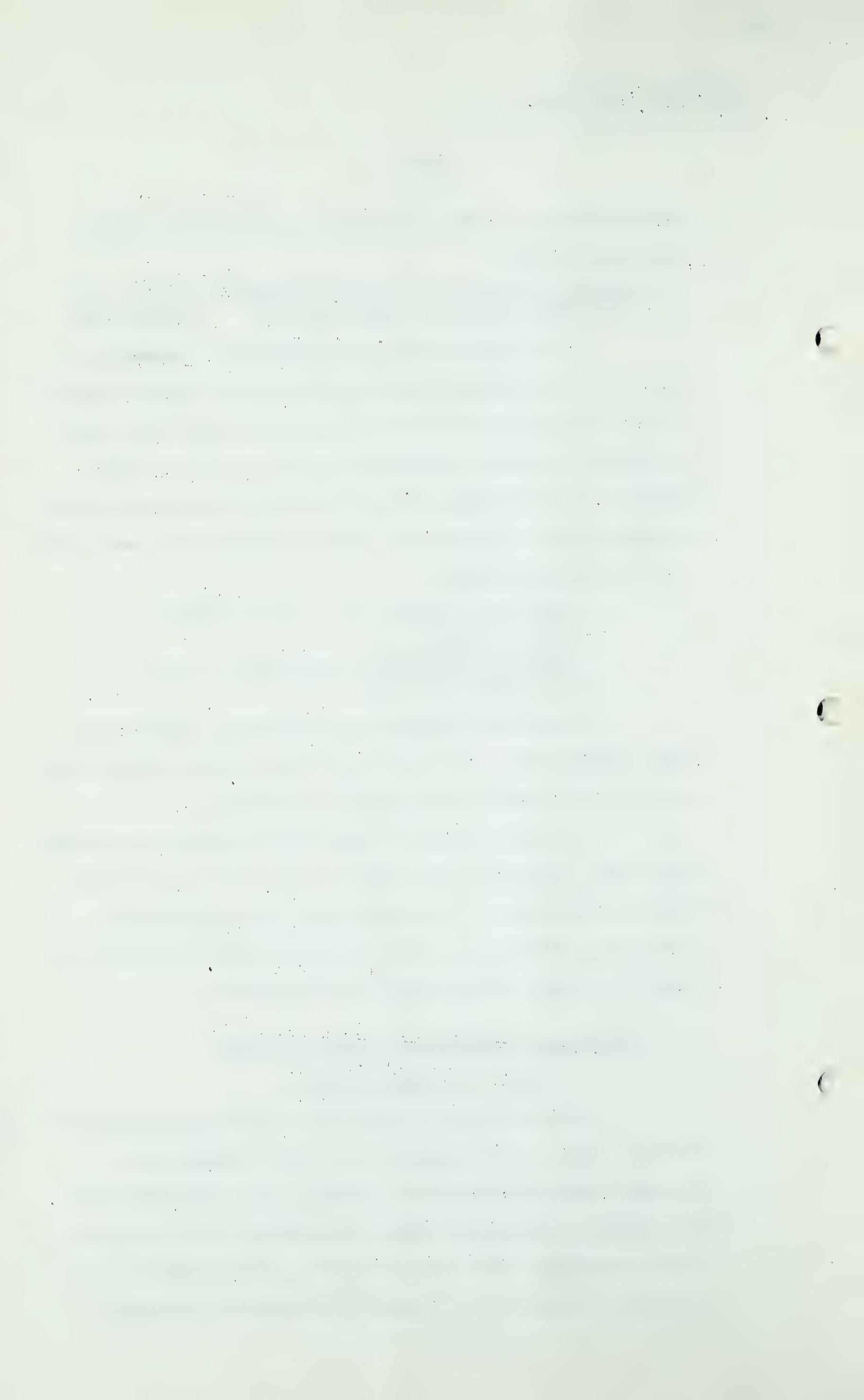
The within report is therefore an addition to, and a modification of, the Ford, Bacon & Davis Exhibit #44, and is to be read in conjunction therewith.

The unit costs are the same as used in the aforementioned exhibits. The design of the line has been revised to take care of increased deliveries by use of increased pressures and increase in the wall thickness of main line pipe from $\frac{1}{4}$ inches to 5/16 inches.

WESTCOAST TRANSMISSION COMPANY LIMITED

Market for Natural Gas

This estimated market for natural gas along the revised route of the proposed Westcoast Transmission Company, Limited, system is essentially a combination of the market estimates presented in Exhibits No. 44 and 51. Due to changes in the route, the sales to Montana Power Company and sales to the towns of Whitefish, Kalispell



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and Thompson Falls in the State of Montana are eliminated. In lieu of these markets the revised route makes possible the sale of natural gas to the Atomic Energy Plant at Hanford, Washington, and to several towns in Washington such as Omak, Okanogan, Grand Coulee, Ephrata, Soap Lake and Moses Lake.

Estimated sales of natural gas in the fifth year are summarized as follows:

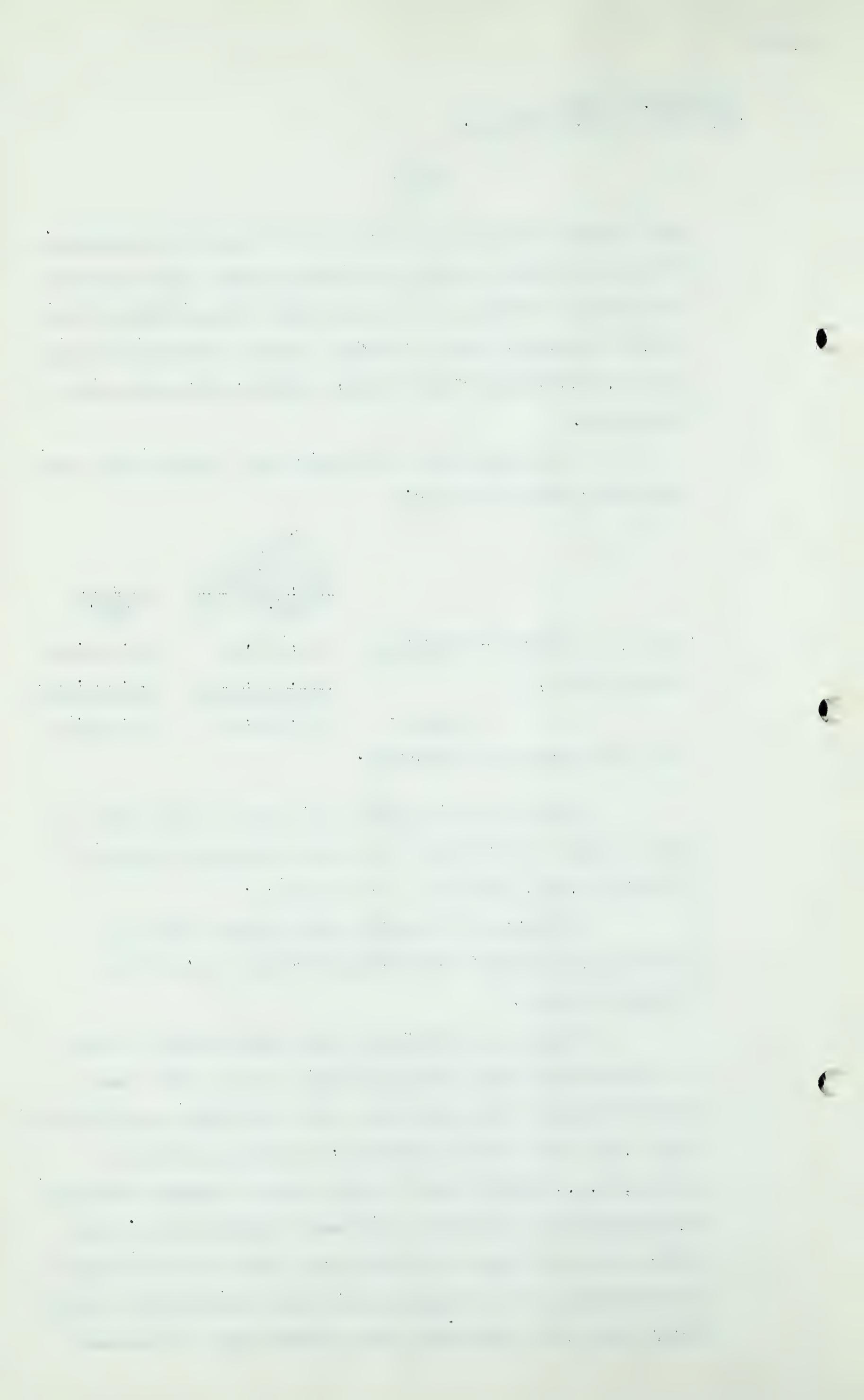
	(A) As shown in Exhibits <u>Nos. 44 & 51</u> Mcf.	<u>Revised</u> Mcf.
Main Line Alberta - Portland	63,788,900	63,788,900
Inland Empire,	<u>25,000,000</u>	<u>25,267,400</u>
Total -	88,788,900	89,056,300

(A) For comparative purposes.

Details of the market estimate for the main line from Alberta to Portland (which are unchanged) appear in Exhibit No. 44, pages 2 to 18 inclusive.

A summary of the 5th year estimate for the Inland Empire market (superseding Exhibit No. 51) is attached hereto.

Page 2 sets forth for the Inland Empire branch the estimated market for natural gas in the fifth year broken down as between the main line to Spokane and Wallace, Idaho, the spur line to Hanford, and the spur line to Trail, B.C., being further broken down as between domestic and commercial, industrial firm and interruptible. The statement on the page following sets forth for the Inland Empire branch the estimated market for natural gas in the fifth year, the commercial sales broken down as between



William B. Poor,
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space heating and general use for the various points of delivery. There follows a map setting forth the route of the proposed system, then following a statement setting forth the size and length of pipe in the transmission system including distances between principal features or points on the line.

The next succeeding statement sets forth the size and length of line as between principal features from Williams Lake to the International Border. There follows a similar statement from the International Border on the main line to Portland.

The next succeeding statement is a similar one for the line from the International Border to Wallace in the United States.

Section 3 covers design of the pipeline with a flow sheet and statement of the horsepower requirements for compression in the fifth year.

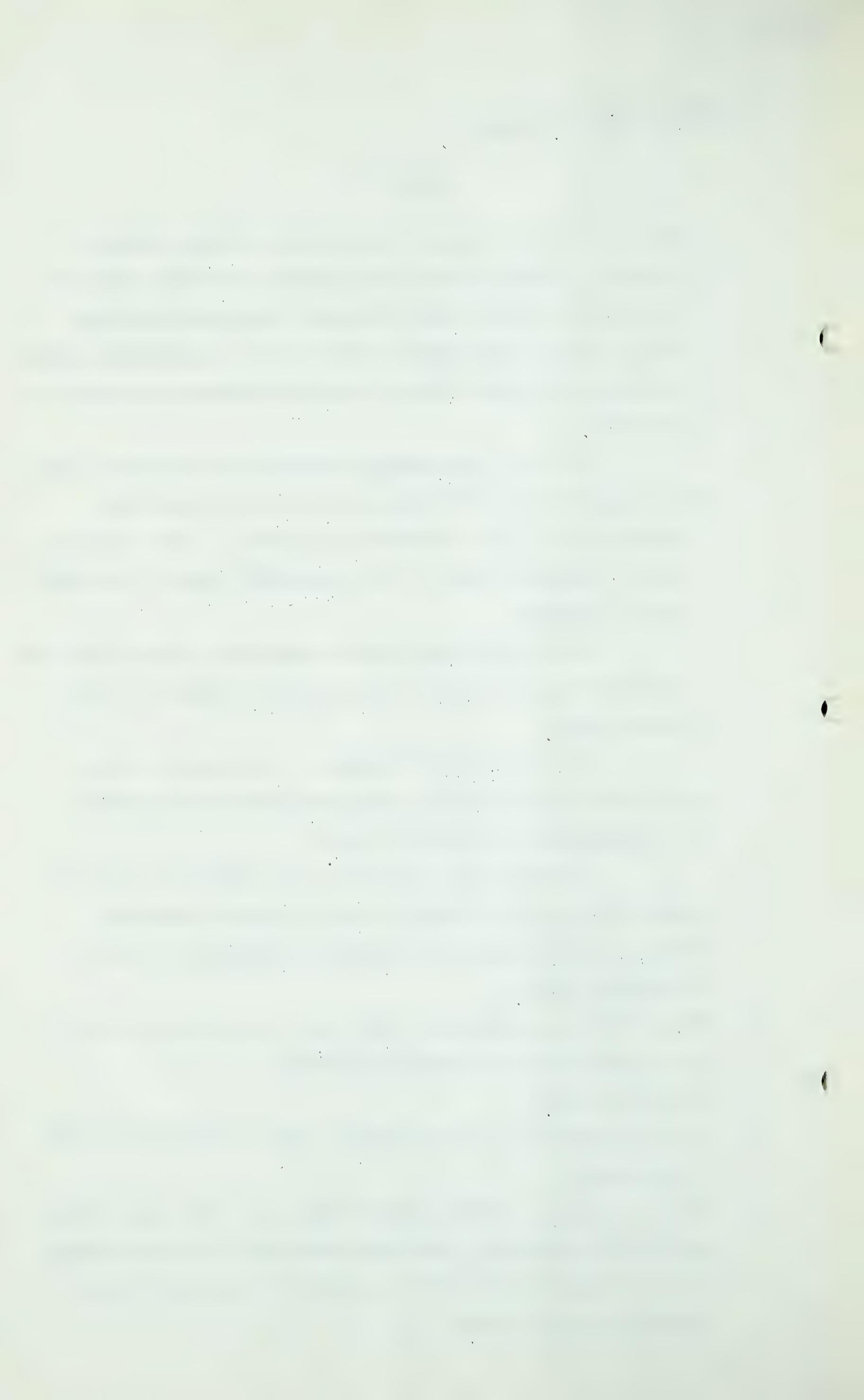
Section 4 is a summary of the estimated pipeline costs for the system broken down as between Gathering System, Pipeline System in Canada and Pipeline System in the United States.

Q Now, this is a tabulation, Mr. Poor, the details of which are contained in the previous exhibits?

A That is correct.

Q And the figures are consolidated, first, second, third and fourth years?

A That is correct. There follows Section 5 which is a statement of the estimated operating costs for the consolidated system reduced in the final analysis to estimated transportation costs per Mcf.



William B. Poor,
Dir. Ex., by Mr. McDonald.

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MR. McDONALD: Now, Mr. Chairman, with regard to the last page for Service to West Coast and Inland Markets, fifth year of operation, you will find, sir, that there was an error in addition. Item 15, Total before Income Tax and Return, the item on the exhibit as presented is \$7,554,000 and it should be \$7,204,000. There is a slight revision in the following items 16 to 23, and I have had that revised, sir, and I have the page to insert. I do not know whether it needs to be marked as an exhibit. The whole page is re-written.

Q I just return to Estimated Investment and Bonded Indebtedness. Just at the bottom of the page is a statement of the bonded indebtedness showing the initial outstanding and retirements and the balance outstanding at each year-end for the first five years.

A Yes, that is correct.

Q That is in addition to your previous statement, I believe?

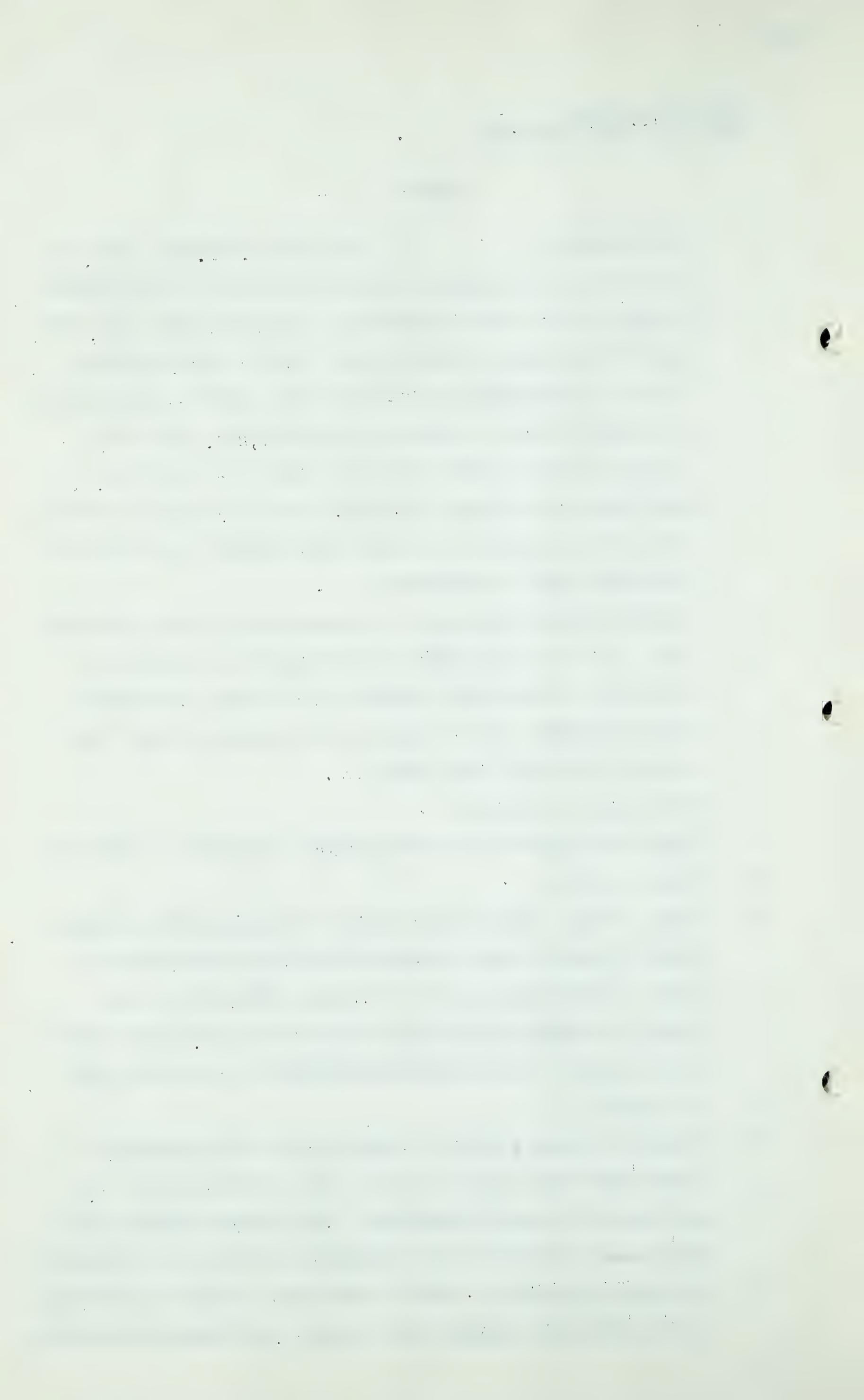
A That is right.

Q Then, if you would deal with your Transportation Charges. This is based on gas volumes of 93 billion 320 million?

A That is field purchase of 93 billion 320 million, and sales to markets of 89 billion 56 million, with the field cost of gas in the fifth year assumed at 4 cents per Mcf.

Q 10 cents?

A I mean 10 cents per Mcf. Gathering and Transportation Costs have been computed on the same identical unit, as set forth in previous exhibits. Two average sales prices have been used solely for comparative purposes on obtaining the rate of return. With 10 cents cost of gas in the field and the 35 cent average sales price, the Transportation Cost



William B. Poor,
Dir. Ex. by Mr. McDonald.

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would be 25 cents per Mcf. and a rate of return on the depreciated investment 7.8 per cent. At a 32 cent average sales price the transportation cost would be 22 cents per Mcf. and return on the depreciated investment of $6\frac{1}{2}$ per cent.

Q Now, those prices of 25 cents and 22 cents are inclusive of gathering costs in Alberta?

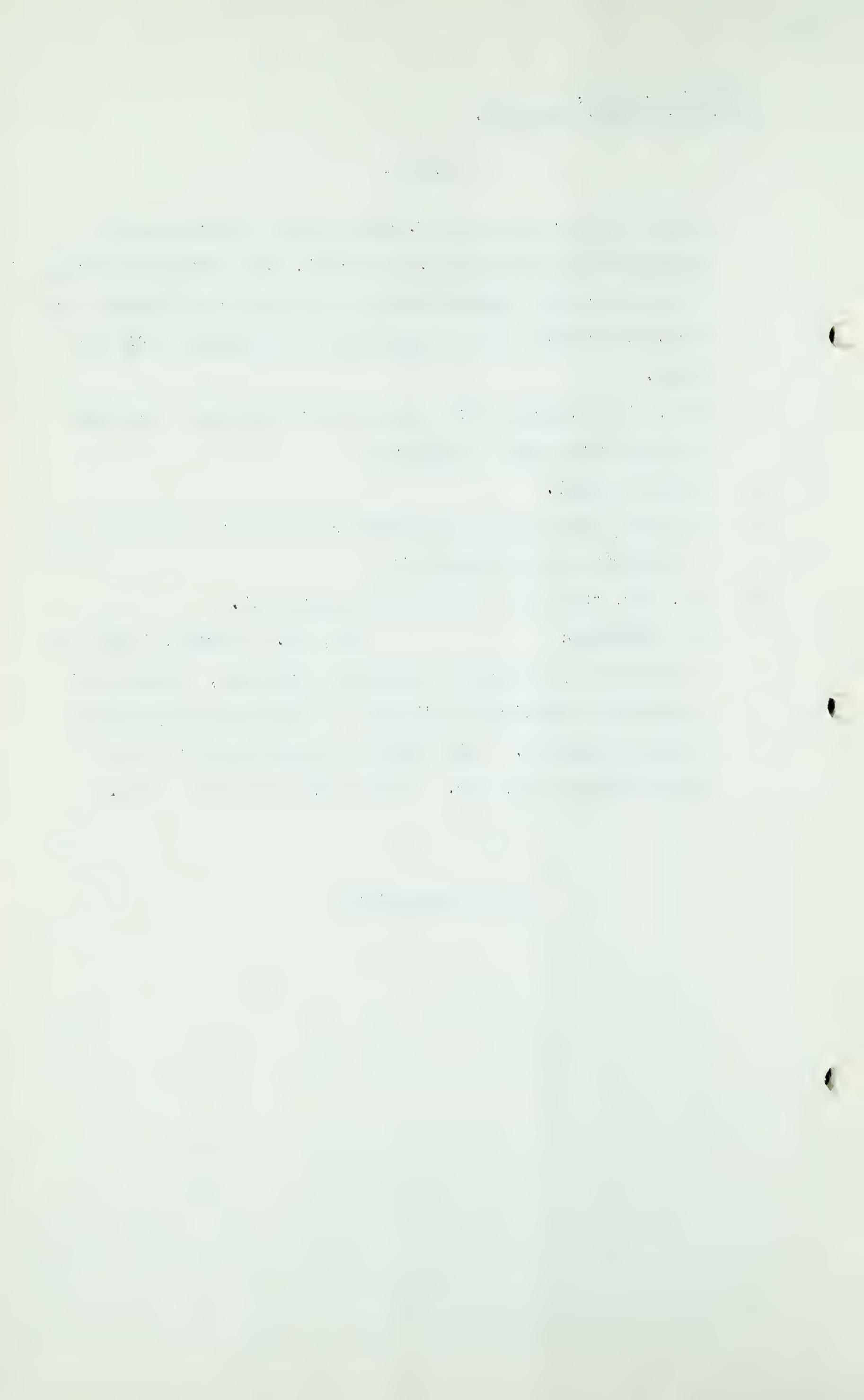
A That is right.

Q You have not made an individual calculation for gathering in Alberta for this exhibit?

A No, sir, this is a consolidated statement.

MR. McDONALD: Now, Mr. Chairman, there was distributed yesterday a submission entitled, "Summary of Capacity of Required Facilities - Westcoast Transmission Company Limited". This exhibit is applicable to this consolidated line, sir. I will give you some copies.

(Go to page 3312)



William B. Poor,
Dir. Ex. by Mr. McDonald

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MR. McDONALD: Exhibit 121, Mr. Chairman.

THE CHAIRMAN: Exhibit 121, yes.

SUMMARIES OF CAPACITY AND REQUIRED FACILITIES AND OF ESTIMATED SYSTEM OPERATION SUBMITTED BY WESTCOAST TRANSMISSION MARKED EXHIBIT 121.

THE CHAIRMAN: Mr. McDonald, in your opening remarks there did you state that you are now applying for 42 billion feet of gas?

MR. McDONALD: Yes. My statement was, sir, that we could limit our application for this line, the Pacific Northwest line, to 42 billion cubic feet of gas.

THE CHAIRMAN: And yet the fifth year figures are all based on 93 billion?

MR. McDONALD: Yes, on the exhibit filed. This present exhibit will clarify the matter as we go along, sir.

THE CHAIRMAN: All right.

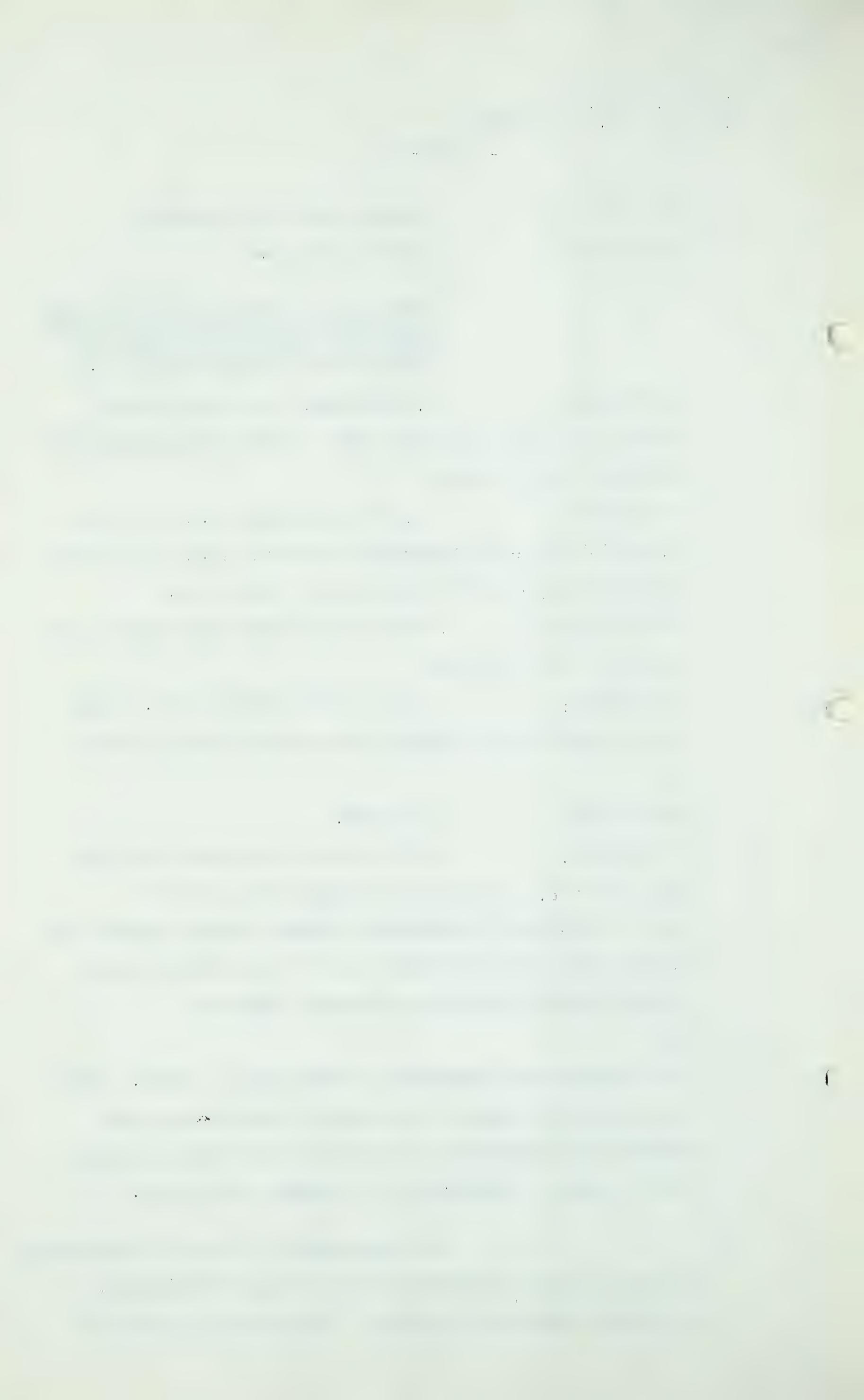
Q MR. McDONALD: Will you just deal with the first page, Mr. Poor, and will you explain the exhibit?

A This is Westcoast Transmission Company Limited summary of capacity and required facilities for the initial stage of development through the ultimate capacity.

Q Yes?

A This statement is developed in four parts. First, there is the initial stage of development wherein the field purchases are limited to 42 billion cubic feet per year and the sales at markets to 40 billion 500 million.

The intermediate stage of development, calling for field purchases of 74 billion 300 million, and market sales of 71 billion. Then there is the full



William B. Poor,
Dir. Ex. by Mr. McDonald

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development, or the fifth year picture, of 93 billion 320 million field purchases, and 89 billion 56 million of sales. In the ultimate capacity of the system to 123 billion of field purchases, and 115 billion of sales.

Respectively, for the various stages, the designed capacity of the pipe line that it will take delivery, it is respectively 155 million, and this is for peak day delivery, 155 million, 240 million, 305 million, and 400 million cubic feet per day.

The horsepower requirements for the system are broken down as between gathering system and a transmission system in Canada, and a transmission system in the United States for the respective totals for the various stages of 15,000 horsepower, 42,200 horsepower, 55,400 horsepower, and for the ultimate designed capacity 114,800 horsepower.

The pipeline miles in the gathering and transmission system in Canada and the United States, total respectively for the various stages, 1,326 miles, 1,906, 1,906, and 1,906.

Q Just a minute, Mr. Poor. In the initial stage the 1,326 miles comprises the pipe line from Peace River direct to the Pacific Coast?

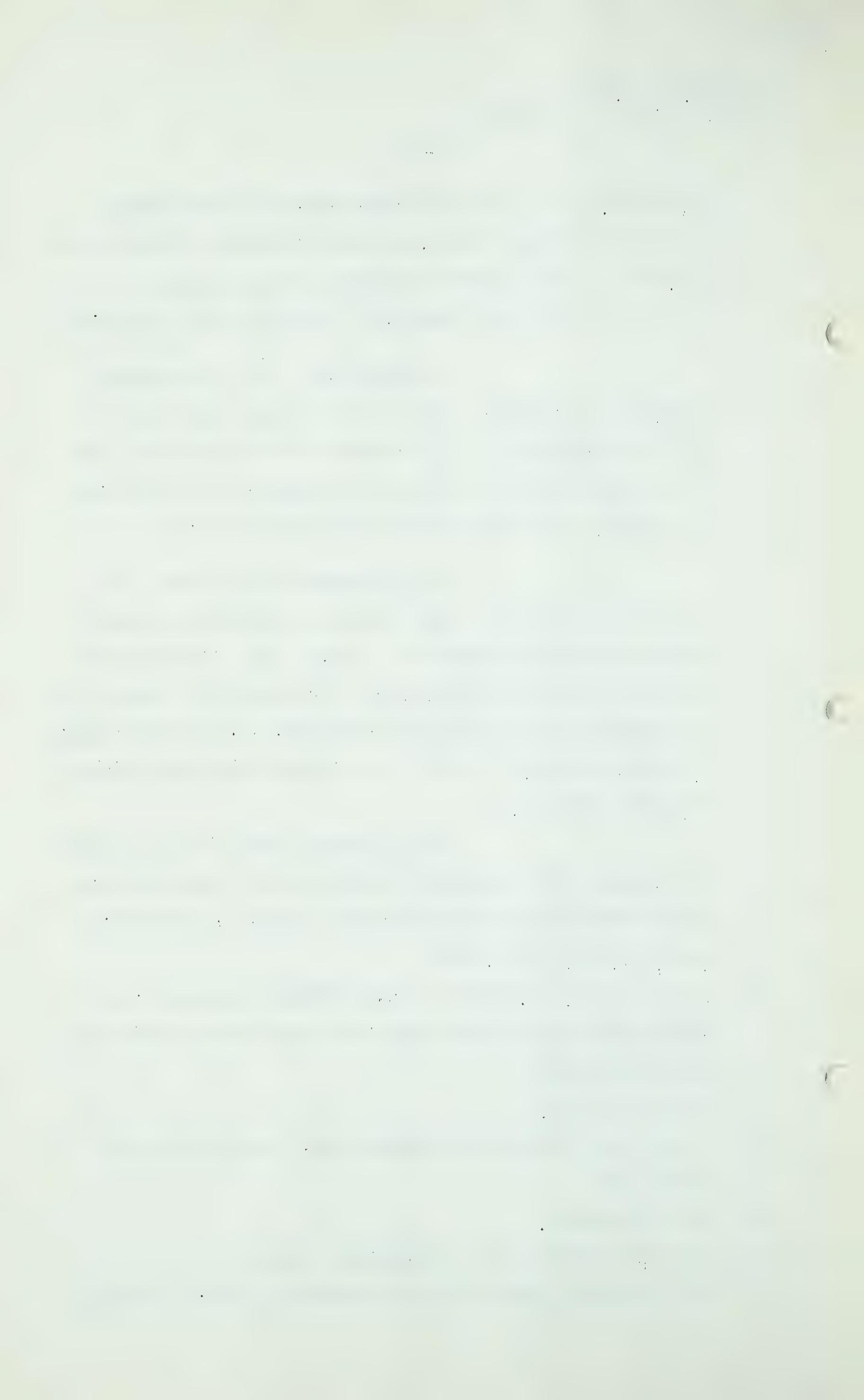
A That is correct.

Q It does not include the Spokane area, Hanford and the Trail line?

A That is correct.

Q They are added in the intermediate stage?

A Yes, they are added in the intermediate stage, and from



William B. Poor,
Dir. Ex. by Mr. McDonald

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there on the gathering and pipe line system remains constant as to miles of line.

Q Yes?

A Page 2 of this exhibit sets forth the summary of the estimated operating costs for gathering and transmission for the initial stage, the intermediate stage, and the full stage of development of the project. These figures, incidentally, by way of explanation, correspond respectively with the second year market figures, the third year the fifth year.

Q Of Exhibit?

A Of Exhibits 44 and 51.

Q And, as consolidated, Exhibit 120?

A That is correct, Mr. McDonald.

Q Yes?

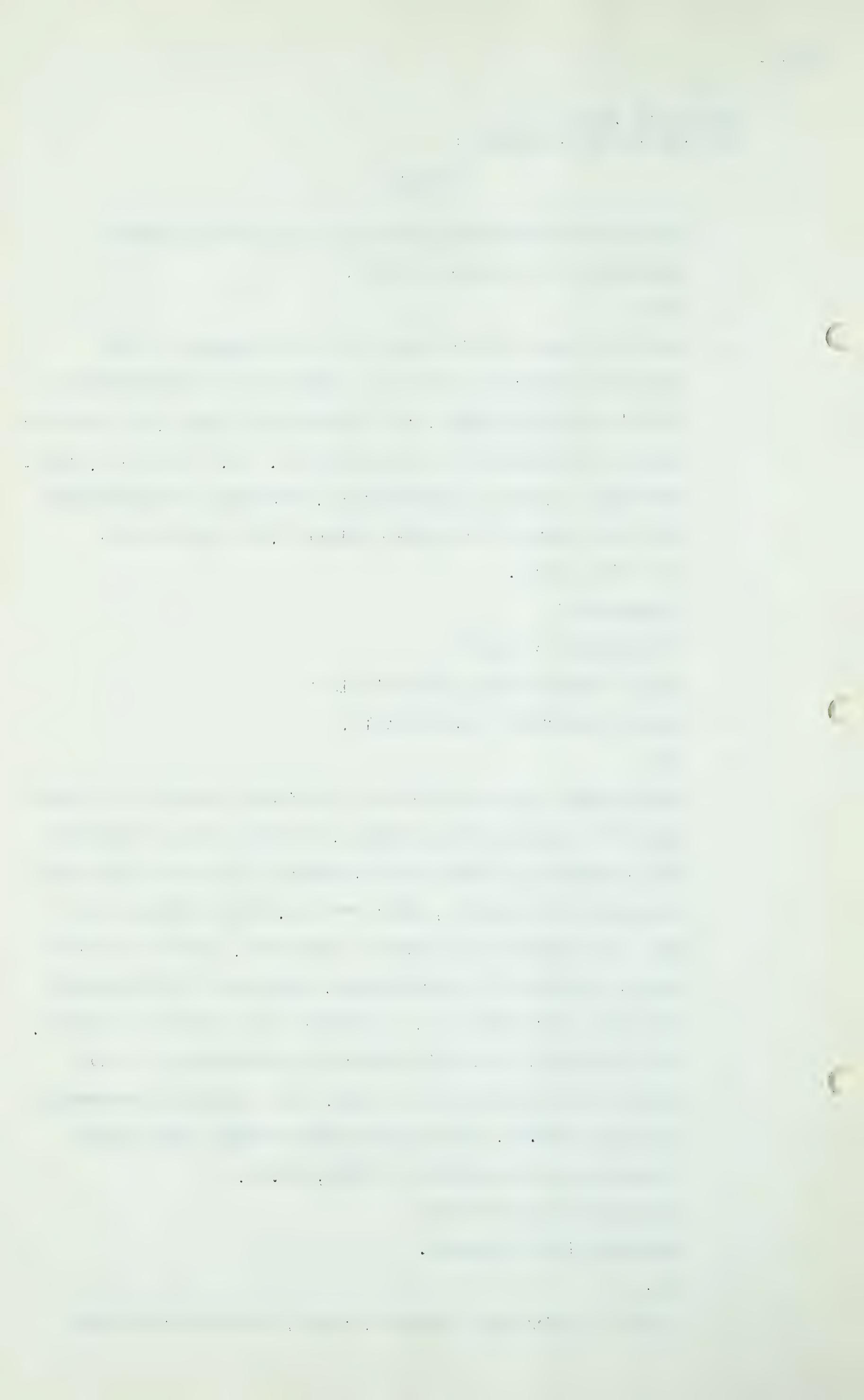
A Again using the same units as previously testified to, and again for comparative purposes, for each stage of development, assuming 35 cents and 32 cents for the average sales throughout the market, there results after purchases of gas, the payment of operating expenses, interest on the dents, reserve for depreciation, available for dividends and other corporate use, the figures set forth in Item 25. For the first, or initial stage of development, at an average sales price of 35 cents, this results in an amount of \$1,495,000.00, and on a 32-cent average sales price. it amounts in the result of \$912,000.00.

Q Available for dividends?

A Available for dividends.

Q Yes,

A I wish to point out, however, that in the initial stage



William B. Poor,
Dir. Ex. by Mr. McDonald

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i of development, a $3\frac{3}{4}\%$ depreciation rate has been used instead of the 3% depreciation used thereafter.

Q Mr. Poor, dealing with the initial stage, the project is set up so that at 35 cents and 32 cents, it will pay all the debt?

A That is correct.

Q And give a return to the shareholders?

A That is correct.

Q On the investment?

A On the investment, that is correct.

Q And you have pointed out the price of gas?

A The price of gas in the initial stage is assumed to be $3\frac{3}{4}$ cents.

Q $7\frac{3}{4}$?

A Yes, $7\frac{3}{4}$ cents per Mcf., for the intermediate stage at $8\frac{1}{2}$ cents, and for the full development or fifth year, 10 cents per Mcf.

Q If you would deal with the intermediate stage, Mr. Poor. Oh, by the way, there is just one other question. If you were operating in the second year of the initial stage, third and fourth years, you could still pay an increasing cost of gas?

A That is correct.

Q At the rate of $3\frac{3}{4}$ cents in the first five years?

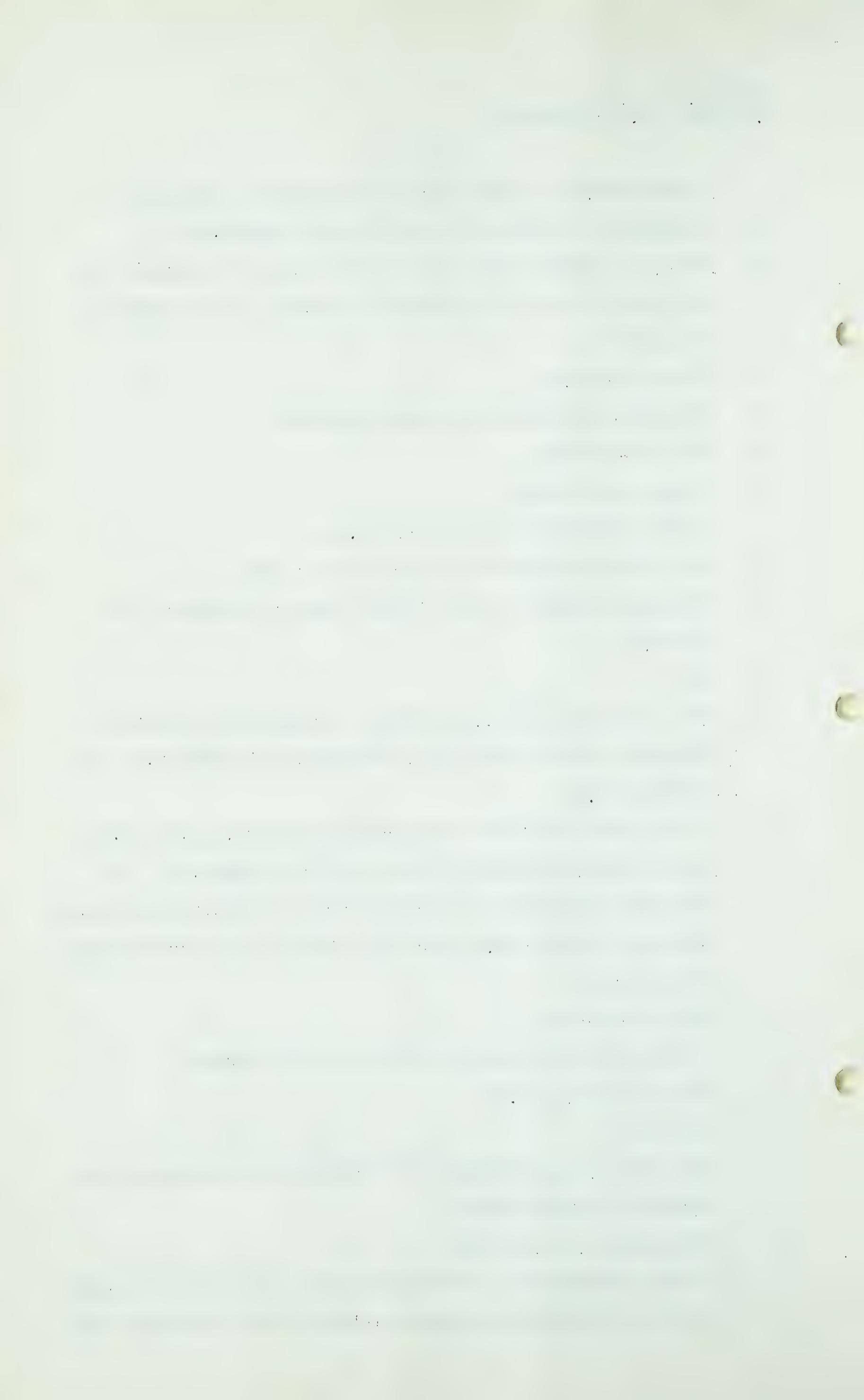
A That is correct, yes.

Q Per year?

A Yes, per year, providing the expansion is developed consecutively on that basis.

Q Will you go on, Mr. Poor?

A By like explanation, the intermediate stage of development results in respective amounts available for dividends on a



William B. Poor,
Dir. Ex. by Mr. McDonald
Cr. Ex. by Mr. Nolan

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35-cent average sales price of \$3,166,000.00, for the 32 average sales price, \$2,143,000.00. That is with gas purchased at $8\frac{1}{2}$ cents per Mcf.

Q Yes?

A For the full stage of development, to meet the market requirements as set up in previous exhibits, with the 35-cent average sales price and the 10-cent field purchase price of gas, there results available for dividends \$4,628,000.00, and at an average sales price of 32 cents, \$3,345,000.00.

Q Yes, just a moment, Mr. Poor. There is just one point, Mr. Poor?

A Yes.

Q You have item 22 in this exhibit which is bond retirements?

A Yes, sir.

Q And that exceeds the reserve for depreciation. I mean that includes payment of all of the debts with regard to the bonds, interest has been taken care of, bond interest and bond retirement?

A That is correct.

Q And the net amount left available for dividends is the net amount to the shareholders?

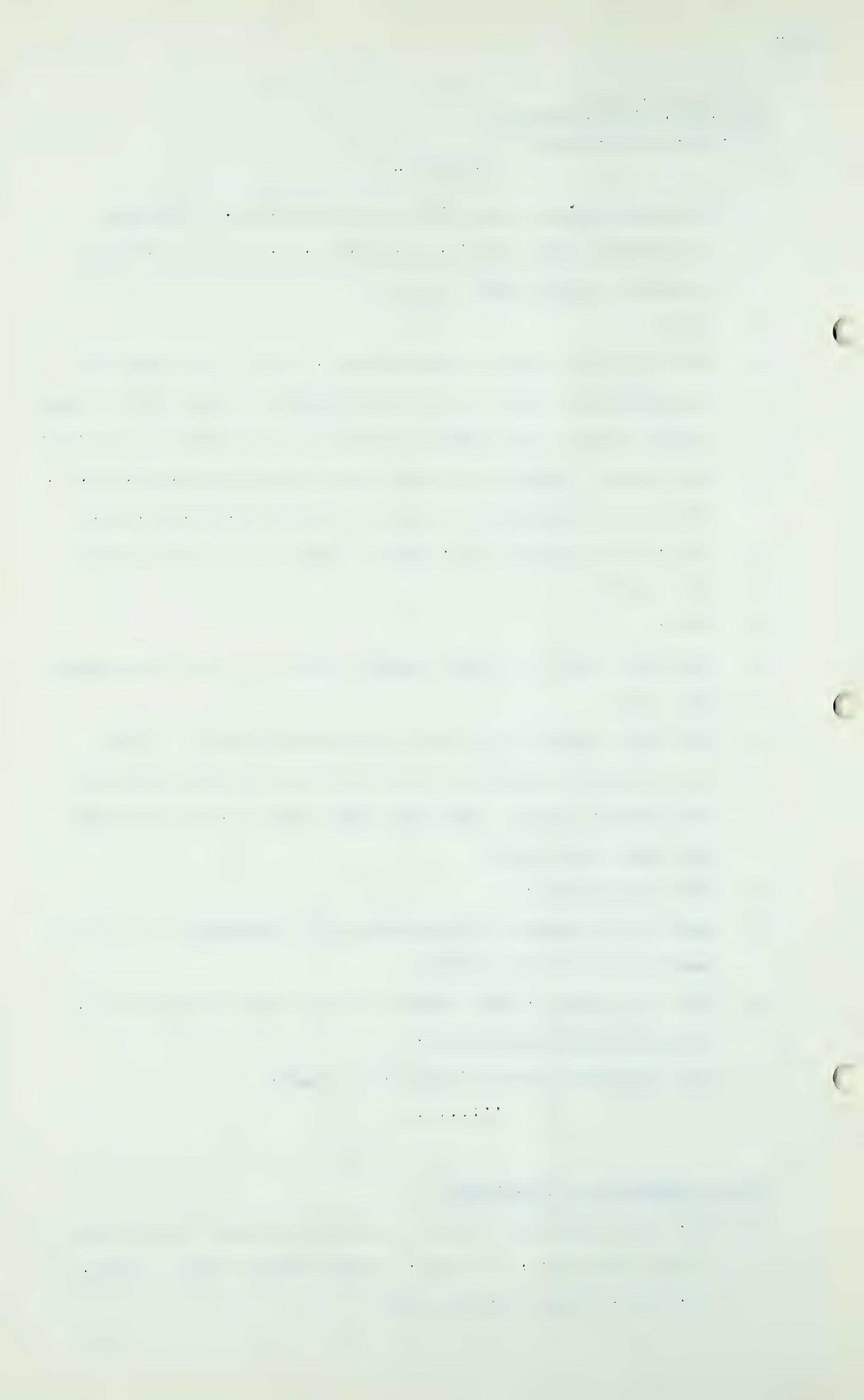
A That is correct, after payment of all other obligations, including bond retirement.

Q You can answer other counsel, Mr. Poor.

.....

CROSS-EXAMINATION BY MR.NOLAN:

Q Mr. Poor, there were one or two matters that I would like to ask you about, if I may. The initial stage is what, Mr. Poor, in your Exhibit 125?



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A The initial stage of development. . .

Q Is?

A . . . is the sales to market of 40,500,000,000 cubic feet per year.

Q No, but what year is that, year or years?

A That would correspond to market requirements in excess of the second year • estimated market demands, and something less than the third year of estimated marked demand.

Q So the initial stage is really the first and second years?

A No, it is between the second and the third year, Mr. Nolan.

Q Between the second and the third year?

A That is correct.

Q Second and third?

A Yes.

Q And then the intermediate stage is?

A Corresponds substantially to the third year market demand.

Q It is not between the third and the fifth?

A No. I think you will find that that corresponds to the third year on the consolidated statement, and the full development is the fifth year.

Q Is the fifth year?

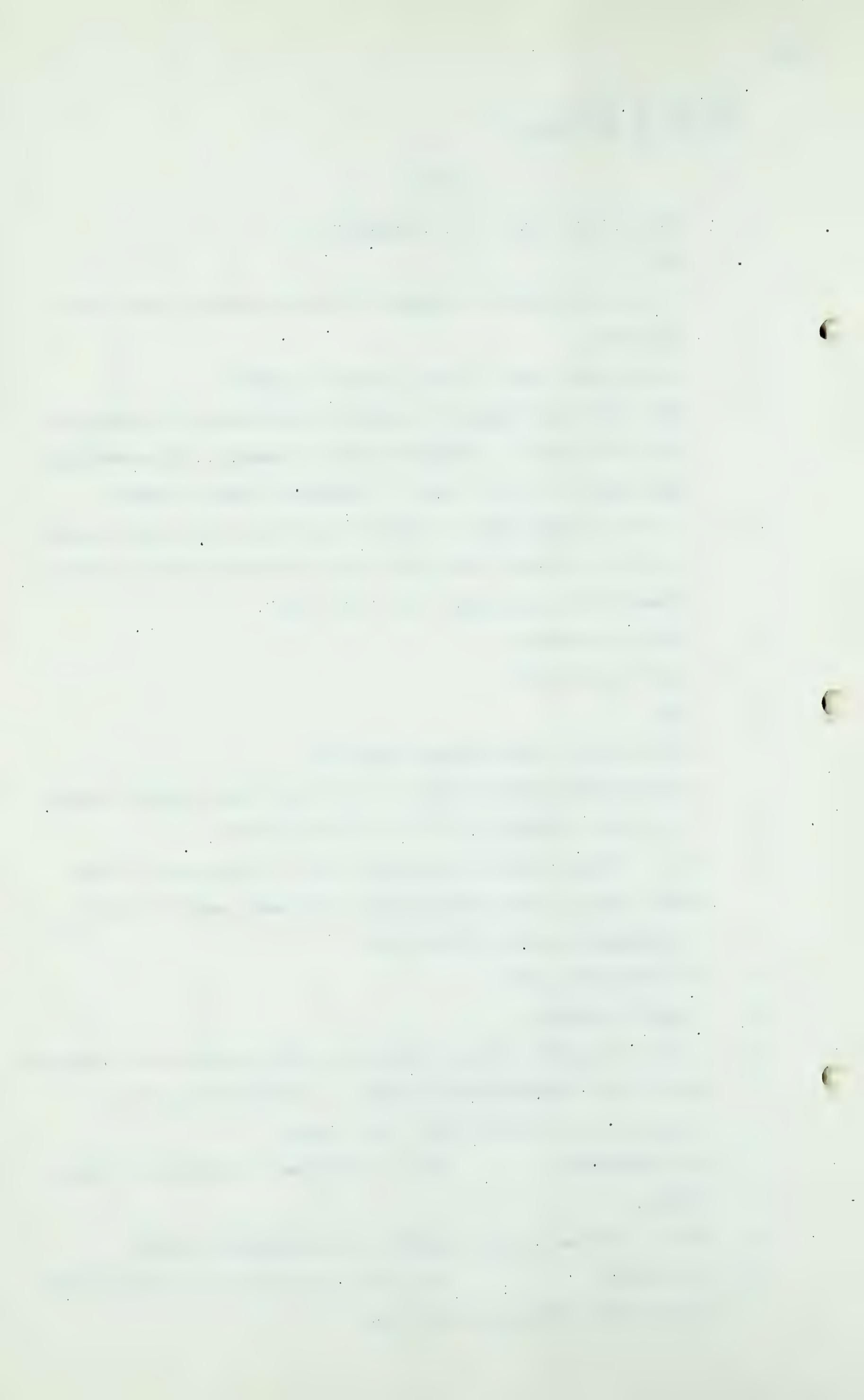
A That is correct.

Q I see. Now, Mr. Poor, I wanted to ask you just one question about your compressor stations. I think they are in Section 4 of Exhibit 120, am I right?

MR. McDONALD: Yes, it follows the design of pipe lines.

A Well, Section 4 is a summary of construction costs.

Q MR.NOLAN: Yes, but I can see the costs of your compressor stations, can I not?



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A Yes.

Q And the cost would be for the gathering system \$2,816,100.00, that is right, isn't it?

A That is right.

Q And then for the Canadian system, \$8,571,200.00?

A Yes, sir.

Q And, over the page, for the United States system, \$912,000.00?

A That is correct.

Q I think it shows elsewhere that the installed horsepower is 55,400?

A 55,400, that is correct.

Q That gives us a figure, I understand, of \$222.00 per horsepower?

A I do not recall having testified to a figure of \$222.00 per horsepower.

Q Well, my information is that the cost per horsepower in Alberta, on the figures we have just mentioned, would be \$217.00, is that right? Well, perhaps you can tell me what your horsepower figure is?

A I believe that the direct cost, as used herein, was \$200.00 per horsepower, but in order to get the total in Canada, there would have to be added sales tax and import tax.

Q And what would that bring it up to?

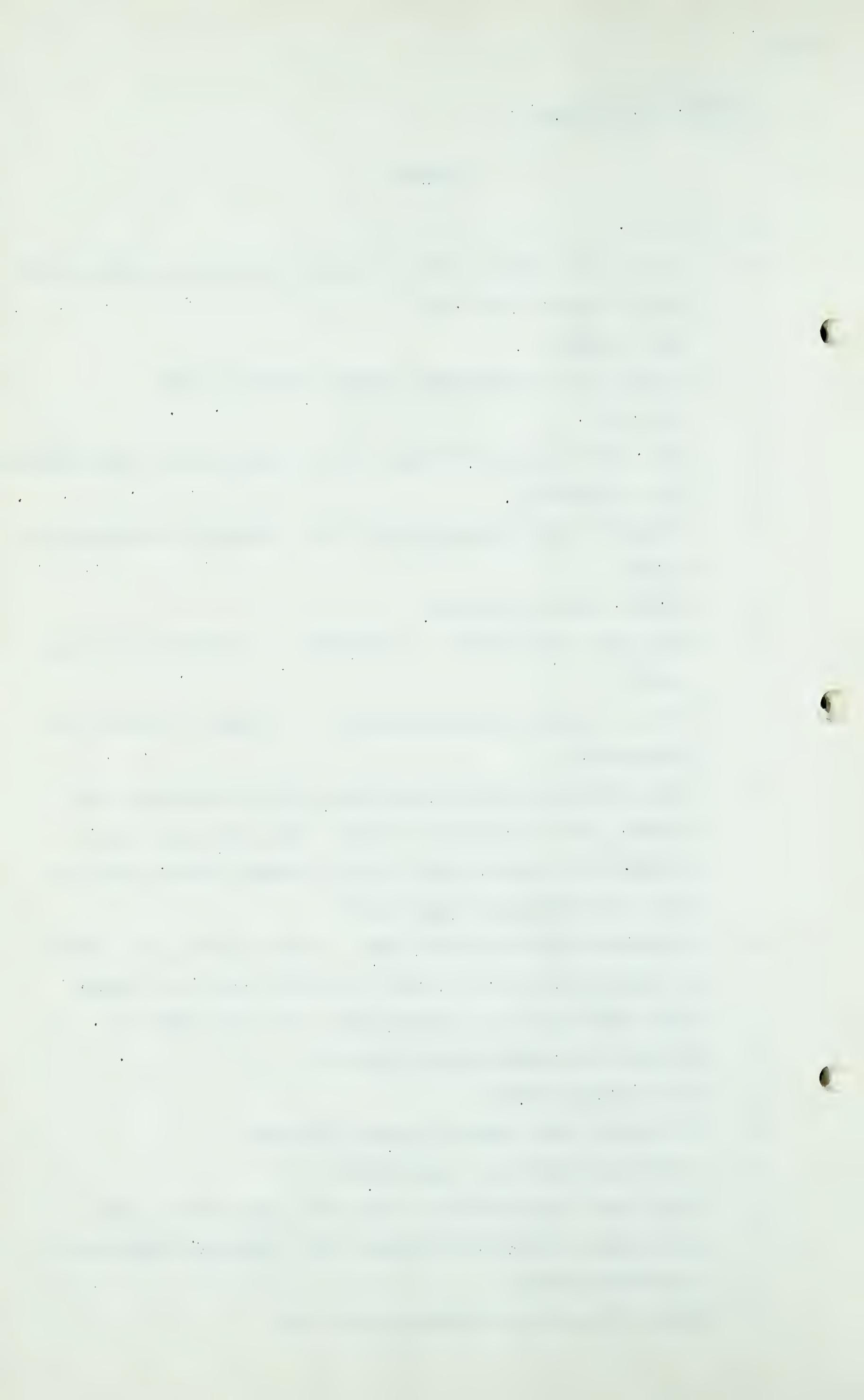
A And the import duty.

Q What would that bring it up to, Mr. Poor?

A I have not made that computation.

Q Well, this figure that you have just given to me, does that figure include an allowance for houses for employees, or contingencies?

A Well, let us take this and I will see.



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Q What I am trying to do, Mr. Poor, and I will tell you, perhaps I should have told you before, I am not criticizing your estimates in any way.

A I know.

Q I am not saying yours are right or mine are right, or either are right, all I am trying to do is contrast, that is all.

A I understand.

Q Yes.

A I understand. For the fifth year, Mr. Nolan. . .

Q Yes?

A . . . the total installed horsepower, by way of example, this is, of the main line system in Canada is 38,400 horsepower.

Q At a cost of \$8,571,200.00?

A That is right.

Q Yes?

A That is broken down as between station sites for \$28,000.00, site improvements \$105,000.00, housing \$350,000.00, station proper \$7,680,000.00, and omissions and contingencies of \$408,200.00.

Q Yes. Can you give me the cost per horsepower?

A Yes. That is a matter of computation here.

Q Well, does it appear here, Mr. Poor?

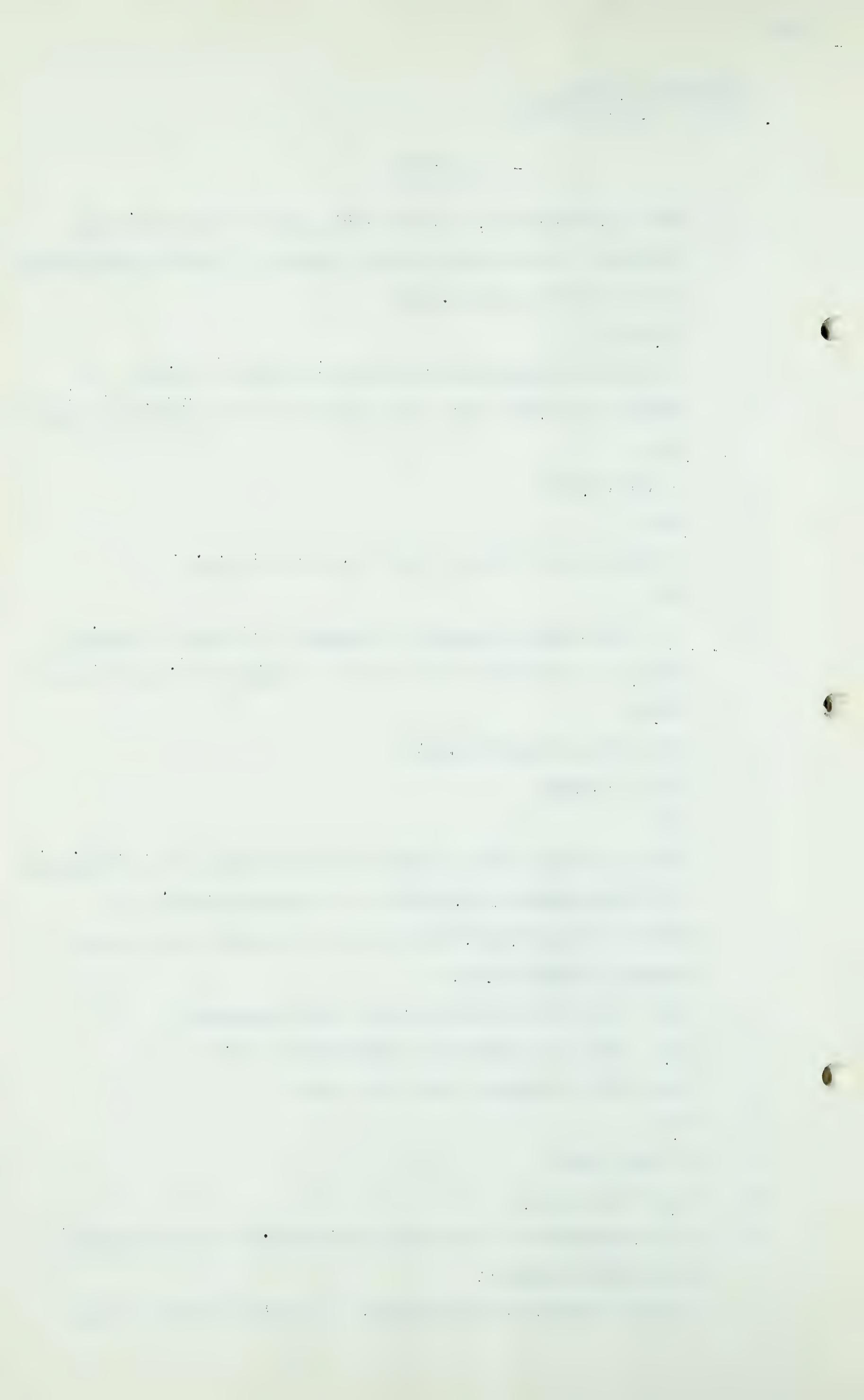
A No.

Q It does not?

A No, it does not.

Q If I suggested to you that it was \$223.00 per horsepower, would that be right?

A I would not quarrel with that. I think probably you are



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correct. I will check it roughly on the slide rule here.

Q Well, please?

A Yes, that is substantially correct.

Q And in Alberta, with regard to the installed horsepower at a cost of \$2,816,100.00, we would get a cost per horsepower of \$217.00?

A I expect that is correct.

Q My figure is, in the United States, the comparable figure, would be \$228.00 per horsepower?

A I think that is correct.

Q And this figure we have here for horsepower, it does include the allowance for housing of employees, does it?

A Yes.

Q You have told us that?

A Yes, sir.

Q Now, the Northwest Company, and you may remember I represent that Company, Mr. Poor?

A Yes.

Q They have a cost per horsepower of \$302.00. That would be about - I am contrasting only, Mr. Poor?

A Yes.

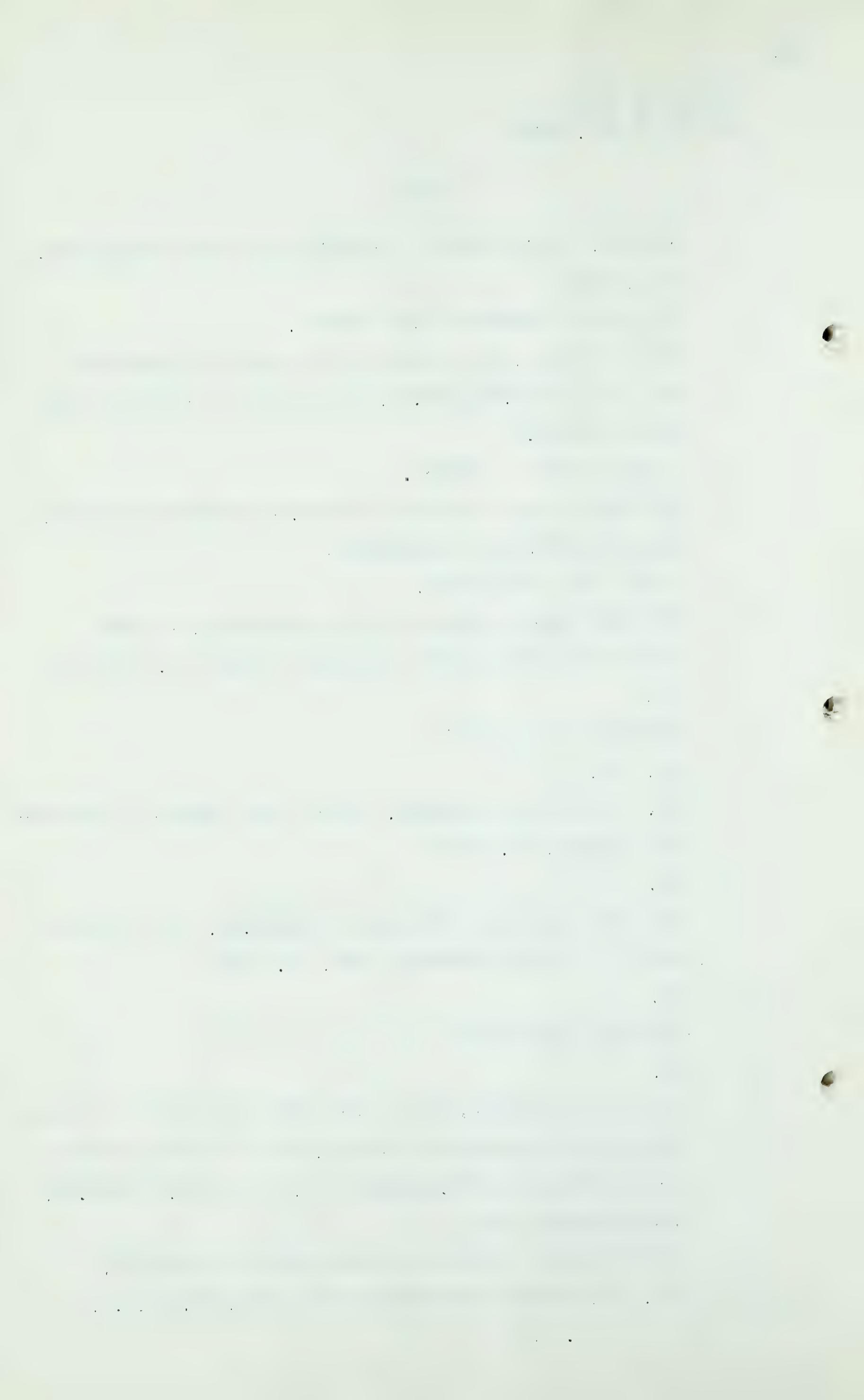
Q 35% higher than yours?

A Yes.

Q And you are familiar, are you not, with the estimates of the Northwest for compressor stations, and if I give you the figure perhaps you will remember it, it is \$13,377,000.00, do you remember that?

A I do not recall it, but I am sure that it is correct.

Q Well, your estimate amounts in all to \$12,000.00 . . .



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A \$12,000,000.00.

Q \$12,299,300.00?

A That is correct.

Q Which is a difference of about \$1,000,000.00?

A Yes. I think your client's estimate for compressor stations is very adequate.

MR. McDONALD: Mr. Chairman, just so that we do not get into any difficulty, I think I should point out that engineering costs, duties and taxes are not included in the figure of Mr. Poor, and they may have been in the figure that Mr. Nolan has mentioned.

THE CHAIRMAN: I think what Mr. McDonald means, Mr. Nolan, is that for it to be a fair comparison to this amount, there should be added the duties and sales taxes, and that would have to be distributed back to the horsepower costs and the station costs.

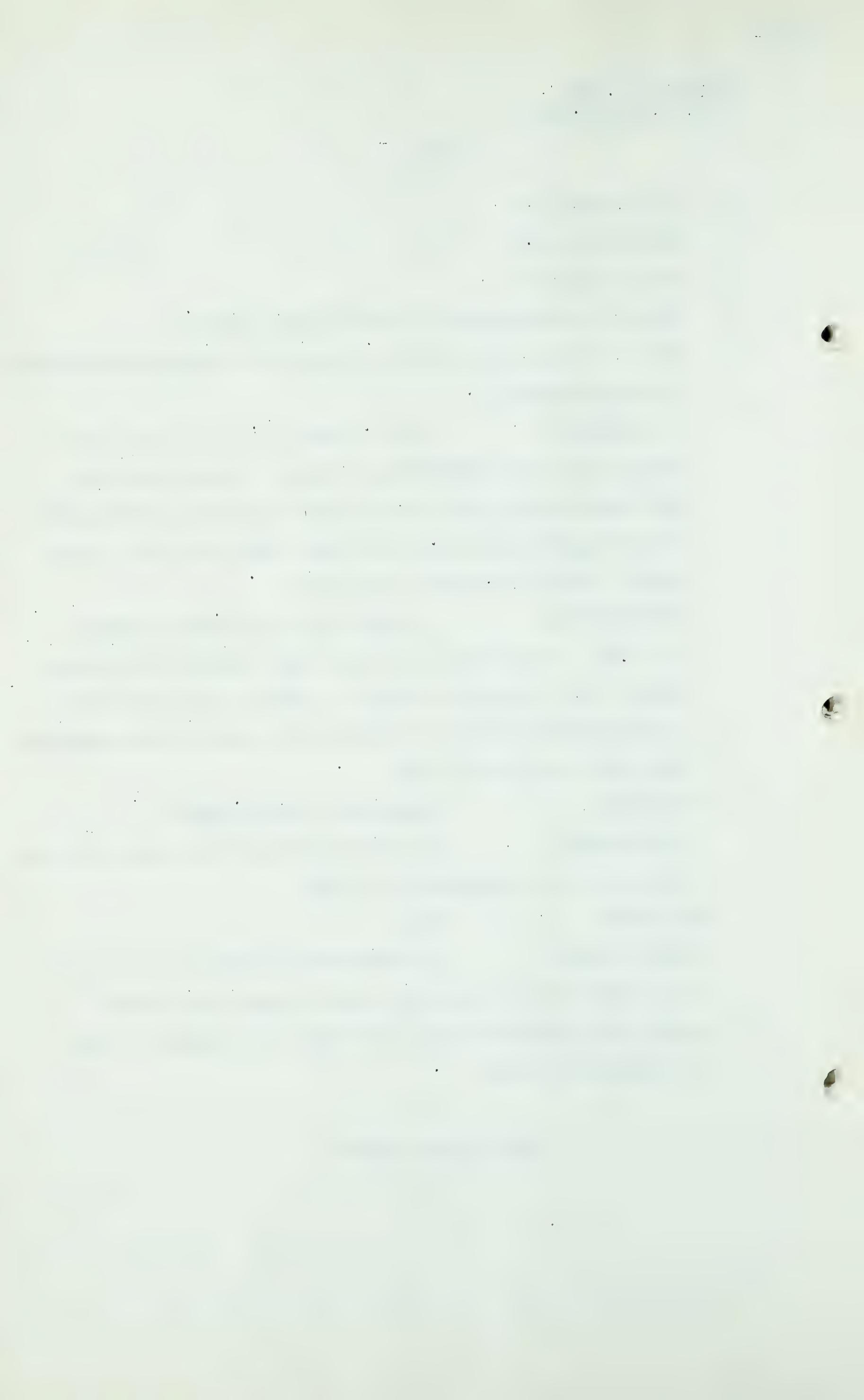
MR.NOLAN: Pardon me, Mr.Chairman?

THE CHAIRMAN: In this statement here where you show the cost of the compressor stations.

MR. NOLAN: Yes.

THE CHAIRMAN: At the bottom of that there is an item added on for duties and sales taxes, which would have to be prorated back to the cost of stations to get a comparative cost.

(Go to page 3322)



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MR. NOLAN: Well, your figure did not include that either, I am informed.

THE CHAIRMAN: I thought that was what Mr. McDonald meant.

MR. McDONALD: Yes, that was what I mentioned.

Q MR. NOLAN: Mr. Poor, there were one or two other matters perhaps I might speak to you about. General taxes are estimated - I am looking now, as I think I should, at substitute page for the last page in exhibit 120, and I am looking at item 13. That would be right, would it not?

A That is correct.

Q You have estimated those general taxes at one-half per cent. Now, I think you perhaps will remember that other applicants have estimated those general taxes at from 1 to 2% and my company had it as 1 $\frac{1}{4}$ %?

A I think that is correct.

Q Then I do not see in your estimates any provision for what are called "privilege taxes"?

A Any privilege taxes would be for the construction period or the right of doing business, included in the overhead item of organization and management.

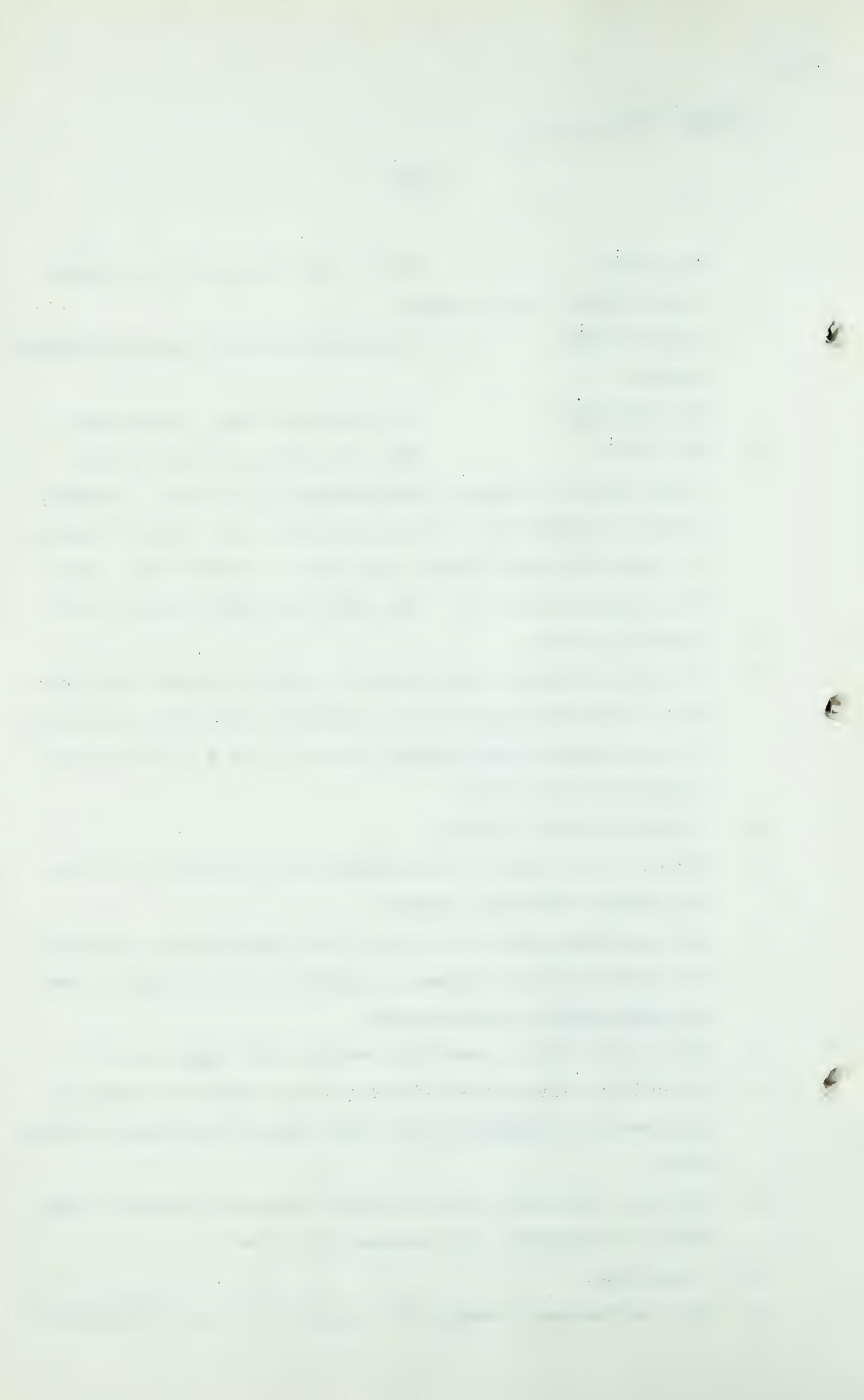
Q But is not that an operating expense, privilege taxes?

A If such privilege taxes adhere that is correct and they in turn would be included in the item General and Administrative Costs.

Q Have you taken into account the 1 $\frac{1}{2}$ % operating revenue in the State of Washington and included that item?

A I have not.

Q And the Northwest Company did include an item of \$155,000.00



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for that in their exhibit 66?

A I see.

Q Do you recall that?

A No, I do not recall that.

Q Now depreciation I am not very clear about. As I understand you, Mr. Poor, in exhibit 121, note B of that exhibit, you begin in the initial stage with a depreciation rate of $3\frac{3}{4}\%$ and then it is 3% thereafter?

A That is right.

Q How does that average out in the first five years?

A I have made no attempt to resolve that.

Q It would be just slightly higher, I suppose, than 3%?

A That is right.

Q It would not be as high as $3\frac{1}{2}\%$?

A No, nor as high as $4\frac{1}{4}\%$ that some people take sometimes.

Q And so far as markets are concerned, Mr. Poor, the largest consumer on your route, that is single market, is Portland, is it not?

A I think that is correct.

Q And perhaps that would be followed by Seattle?

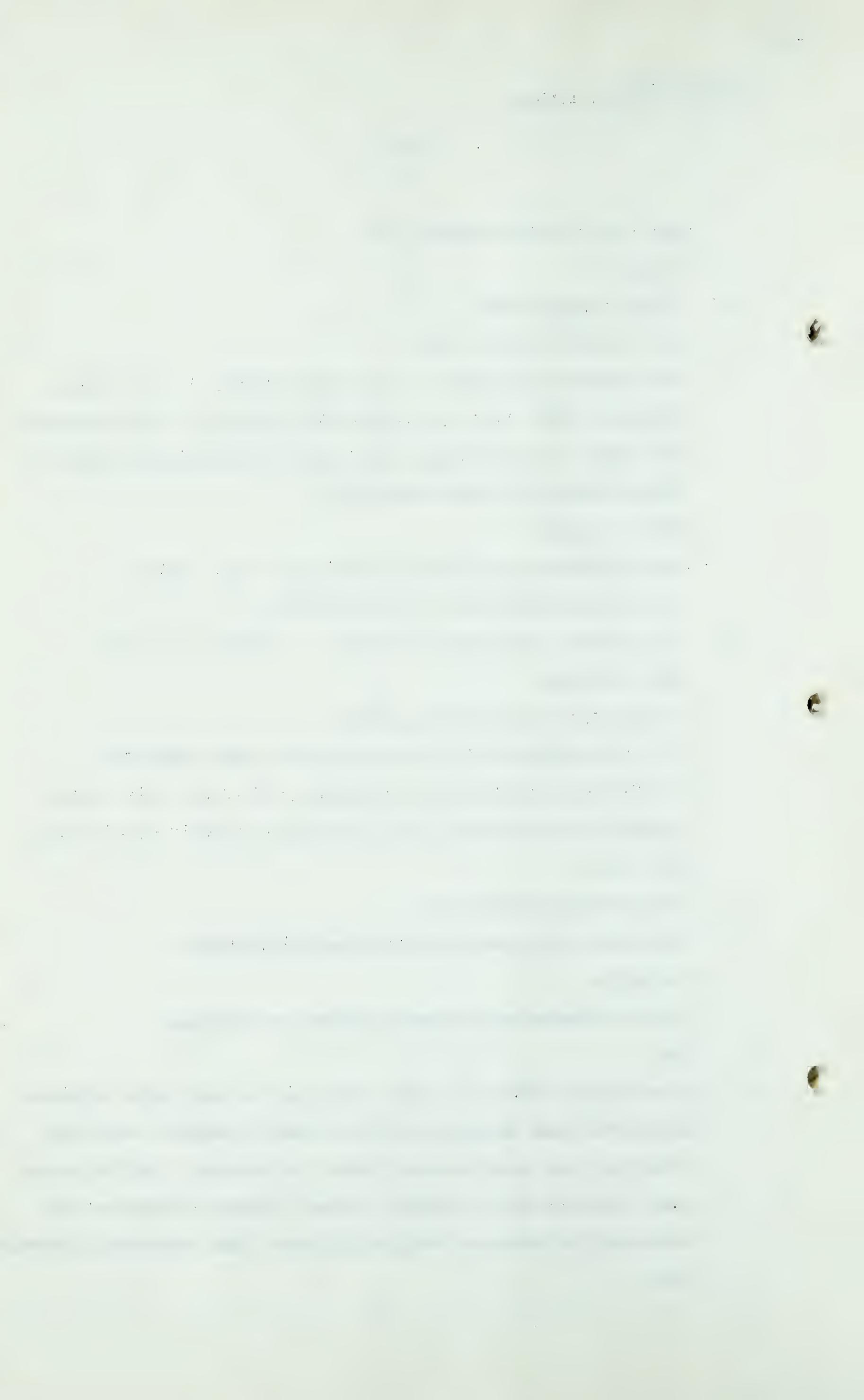
A Probably.

Q And then Vancouver, Tacoma, Hanford and Spokane?

A Yes.

Q My point, Mr. Poor, is this, that you in fact serve approximately the same market as the Northwest Company, with the exception that your company takes in Kamloops, the Princeton area, Kellogg and my company serves Coleman, Kimberley and Cranbrook in Southern British Columbia, and Southwest Alberta?

A Yes.



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Q You do not serve Kimberley?

A No, sir.

Q In your proposed route, do you?

A No. I might, however, point out there that we do propose to serve Northern Alberta towns down as far as High Prairie or Grande Prairie. Just in an effort to make the record clear as to the comparative statements.

Q In your design of line - perhaps you do not speak about that, does Dr. Hetherington?

A He will be available for that.

Q I thought we ought to keep this distinct, so as to prevent confusion.

A Thank you.

Q I meant confusion on my part. Mr. Poor, what is the amount of gas you hope to sell? I understood it was in the vicinity of 90 billion, that is right, is it not?

A In the fifth year, or the full stage of development.

Q Yes. I understand also you would be prepared to accept a permit for 42 billion, as your counsel stated here this morning?

A That is correct.

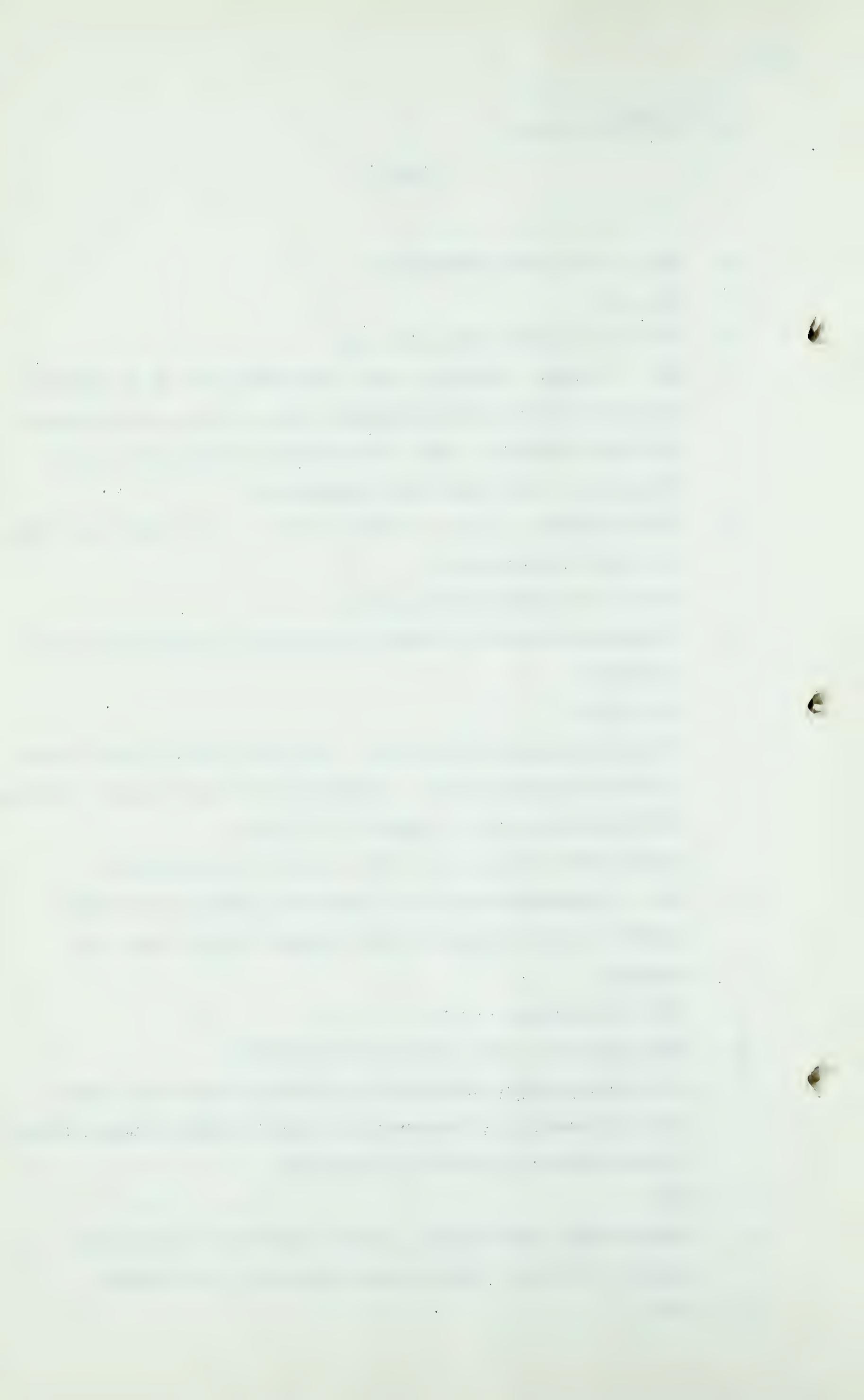
Q What would you serve with the 42 billion?

A As we contemplate the matter at this time we would serve the requirements of Vancouver and the British Columbia cities or towns along the route of the line.

Q Yes?

A And the West Coast market, as set forth in the previous exhibit, from the International Boundary to Portland.

Q Yes?



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A Up to but not to exceed the available field withdrawals which, by this time, represent, according to the testimony of the market experts, something between the second and third year market requirements for that area.

Q You would not be able to serve with this 42 billion what you call the Inland Empire area, would you?

A That is correct.

Q And as far as your transportation cost is concerned - and I hope, Mr. Chairman, that I am not taking up too much time.

THE CHAIRMAN: No, that is quite all right.

Q MR. NOLAN: Your transportation costs, Mr. Poor, as shown on the substituted page for the last page in exhibit 120, are either 25 cents or 22 cents. I think you told my learned friend Mr. McDonald that included the costs of gathering in Alberta?

A That is right.

Q And what load factor did you use in estimating that transportation cost?

A I believe that is in the order of 85% load factor.

Q About 85%?

A Yes, in the full development.

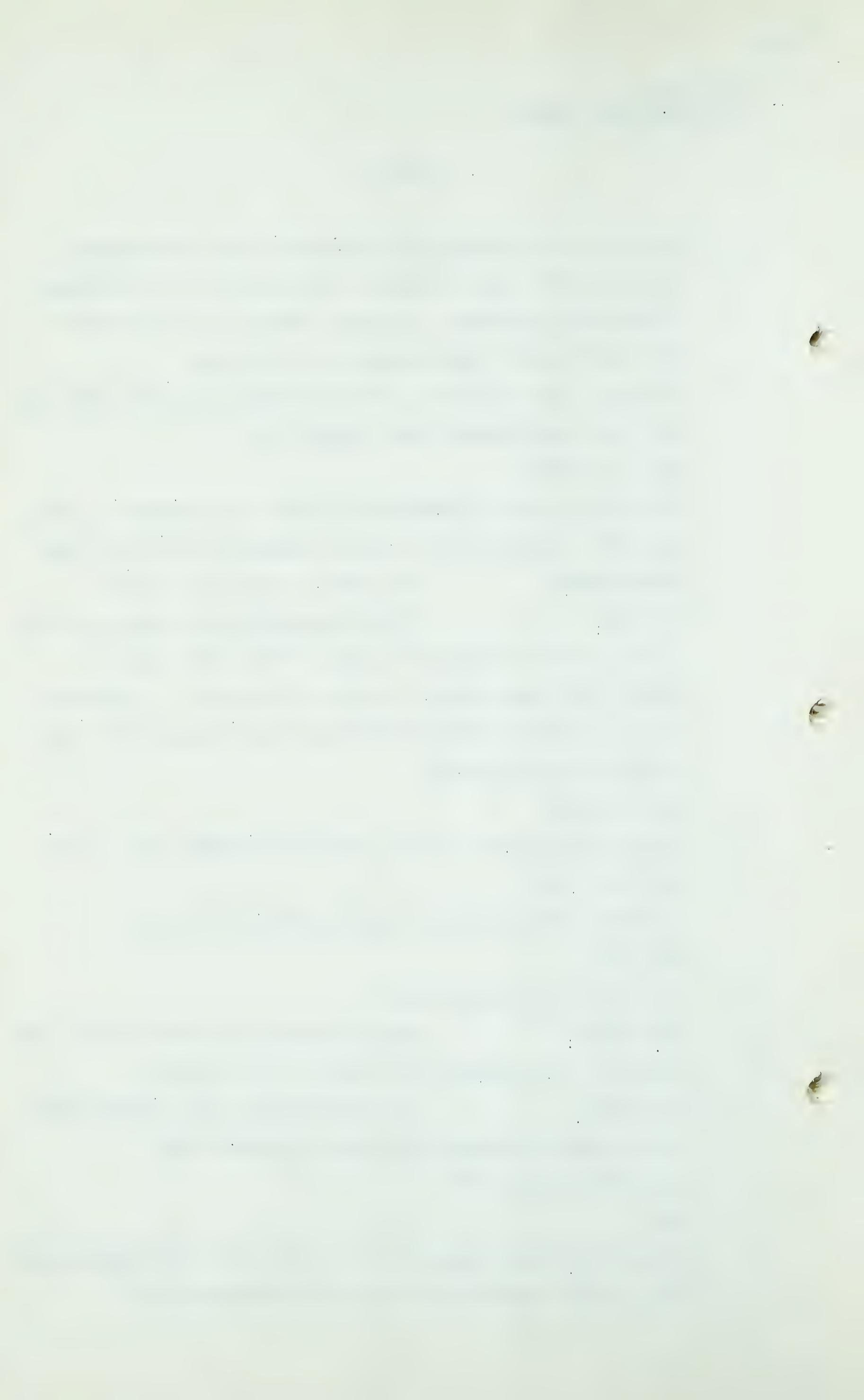
Q MR. GOVIER: What maximum day figure did you use?

A I based it on a maximum day figure of 305 million.

Q MR. NOLAN: And perhaps you will remember that the Northwest transportation cost was 20.33 cents at a 75% load factor?

A Yes.

Q Of course, if you reduce your load factor to that equivalent 75% it would increase your cost of transportation?



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A Obviously, as the load factor is reduced the transport cost of the gas goes up.

Q Mr. Poor, can you tell me about this steel tonnage? As I understand it, the length of line in the intermediate stage is now 1906 miles?

A That is right.

Q It was formerly 1367 miles, that is right, is it not?

A You mean in the initial stage?

A In exhibit 44?

A Yes, I think that is right.

Q And you have also increased the thickness of the pipe from 1/4 of an inch to 5/6 of an inch?

A 5/16ths.

Q 5/16 of an inch, and what amount of steel will be required to build that line of 1906 miles, with the new thickness of 5/16ths of an inch. Does that appear in your statement?

A No, it does not.

Q Can you give it to me in thousands of tons?

A Yes, the new system total would be 159,910 tons for the main line in Canada and the branch lines and the line to the Inland Empire.

Q Yes?

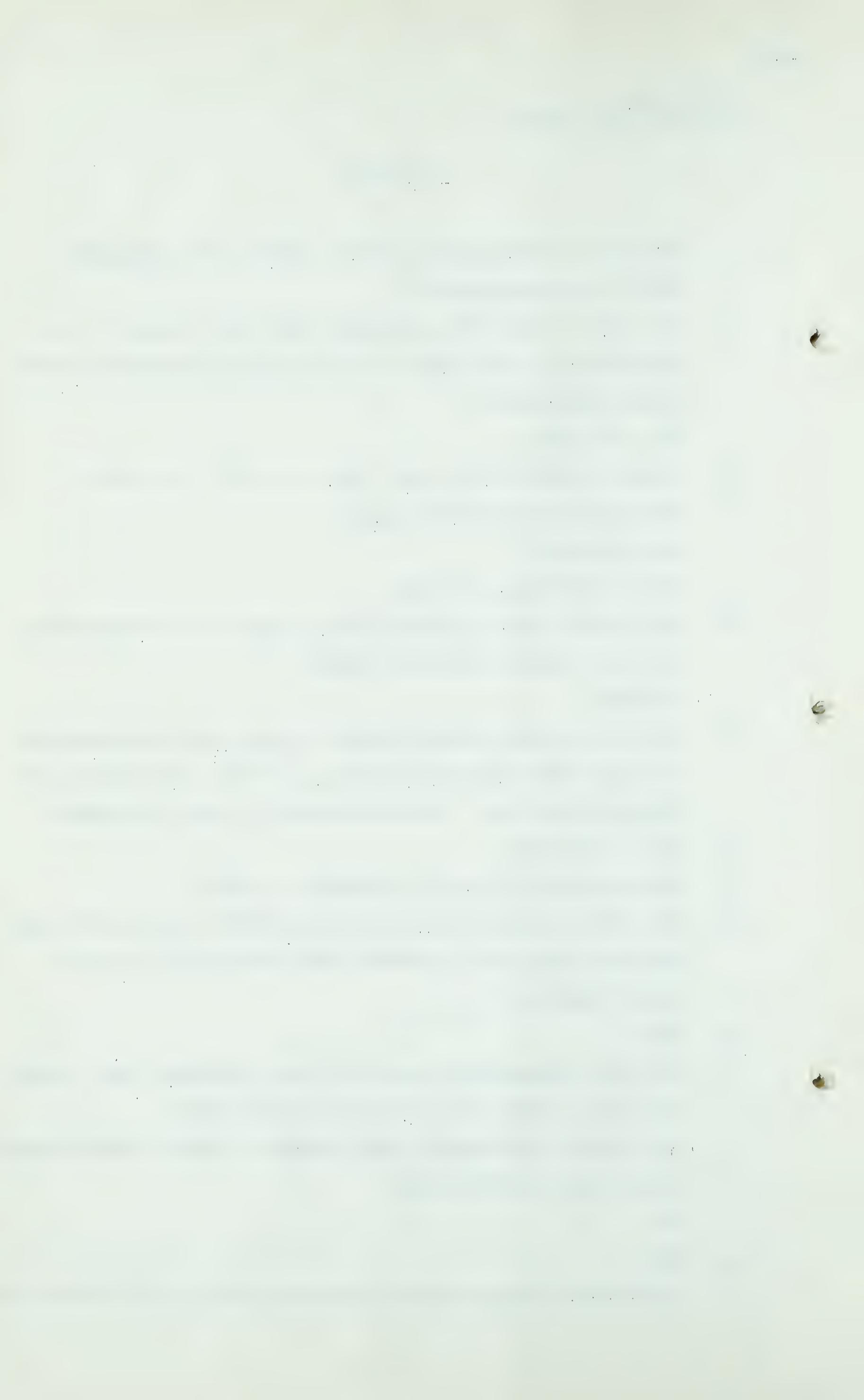
A The wall thickness and sizes of line, gathering line, remain the same so there is no change in that figure.

Q Am I right in saying the total number of tons of steel required would only be 159 thousand?

A No.

Q No?

A I have got to make another computation for you, if you wish it.



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Q Yes, if you do not mind.

A The total for the system would be 263,297 tons.

Q Thank you very much, Mr. Poor, for that calculation. My point in asking these questions, as I said before, was to contrast, if any, the difference in the two designs of line as between your company and mine, and by pointing out to you you have 1906 miles, whereas Northwest has 1330. You have 263,000 tons of steel and they have 187,000 tons of steel. You estimate your line cost in the vicinity of \$125,000,000.00 and their cost is estimated at \$90,000,000.00. My point is this, that there is not very much difference in the transportation costs between these two systems, although there is this large variation in length of line, in tons of steel and in the third item, the cost of construction. I am suggesting to you, Mr. Poor, and perhaps you will agree with me, that this comparatively small difference is accounted for by the lower estimated cost that you have made for compressor stations?

A Oh, no, I think that has no bearing on it.

Q Has not that got something to do with it?

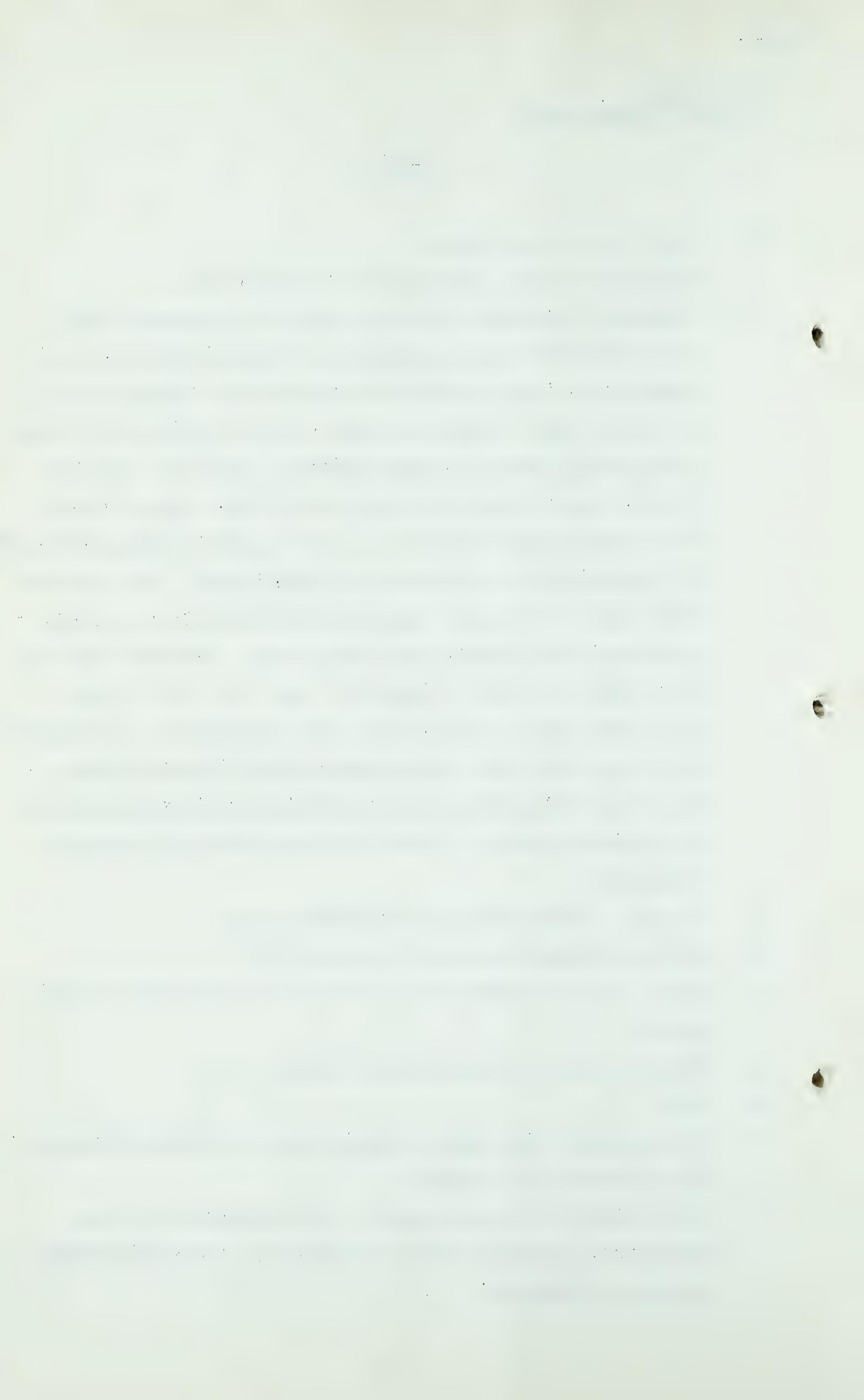
A Well, I do not think you could find it in the third decimal place.

Q No, but I say it is one of the things?

A Yes.

Q Another one is the lower estimated cost of construction per mile of main line, was it?

A No, I think on the contrary for like characters of construction conditions that our estimate is materially higher than your client's.



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Q My figure is \$24,500.00 for my client, as shown in exhibit -- well, I do not know where it is. What is your figure? Can I get that from exhibit 44, your construction cost per mile for main line pipe?

A Yes, I think you can. The point I am trying to make is that I have no quarrel with you if the arithmetic shows that our average cost per mile of construction is less than yours.

Q That is all I am saying.

A I say that the only answer to that we are going through more favourable plains country in the aggregate.

Q I am not arguing whether you are right or I am wrong. I am simply saying there is that difference?

A That is right.

Q I am not going to argue about the merit of either. You use a higher load factor?

A Yes, that is correct.

Q And you purport to serve a larger market?

A That is our estimate for the fifth year.

Q You use a lower tax rate?

A That is right.

Q You do not include privilege taxes?

A That is right.

Q You use a lower depreciation rate?

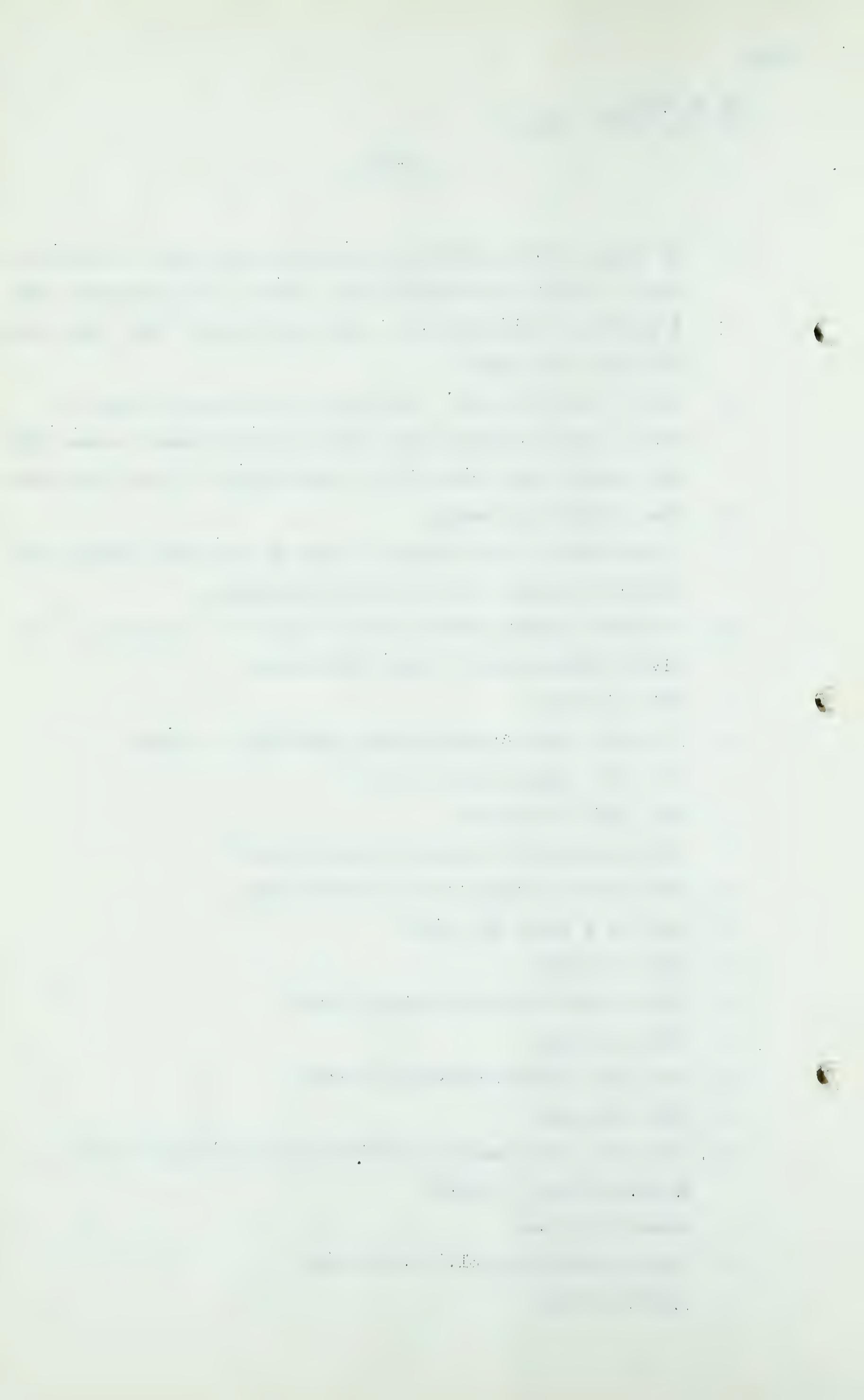
A That is right.

Q You use a lower amount of working capital because yours is \$1,089,000.00, I think?

A Whatever it is.

Q And Northwest's was \$1,500,000.00?

A \$1,500,000.00.



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Q My point, Mr. Poor, and I am trying to make it again, is there are these differences in estimating as between you and the engineers of my company?

A That is correct.

Q And that element, or the factors that I have drawn to your attention, are, I suggest, the reason why, the difference in the length of the line and the differences in the amount of pipe used, in the differences in the construction costs, and there is such a small difference in transportation cost?

A I think that is true.

Q All right, thank you, Mr. Poor.

RE-EXAMINATION BY MR. McDONALD:

Q Just one item, Mr. Poor, This matter of taxes, general taxes . . .

A Yes.

Q Do you recollect that the Board of Transport Commissioners asked applicants one time to have their lines laid out and based on land titles' maps at the scale of a mile per inch?

A Yes, sir.

Q And Mr. Phillips did that?

A Yes.

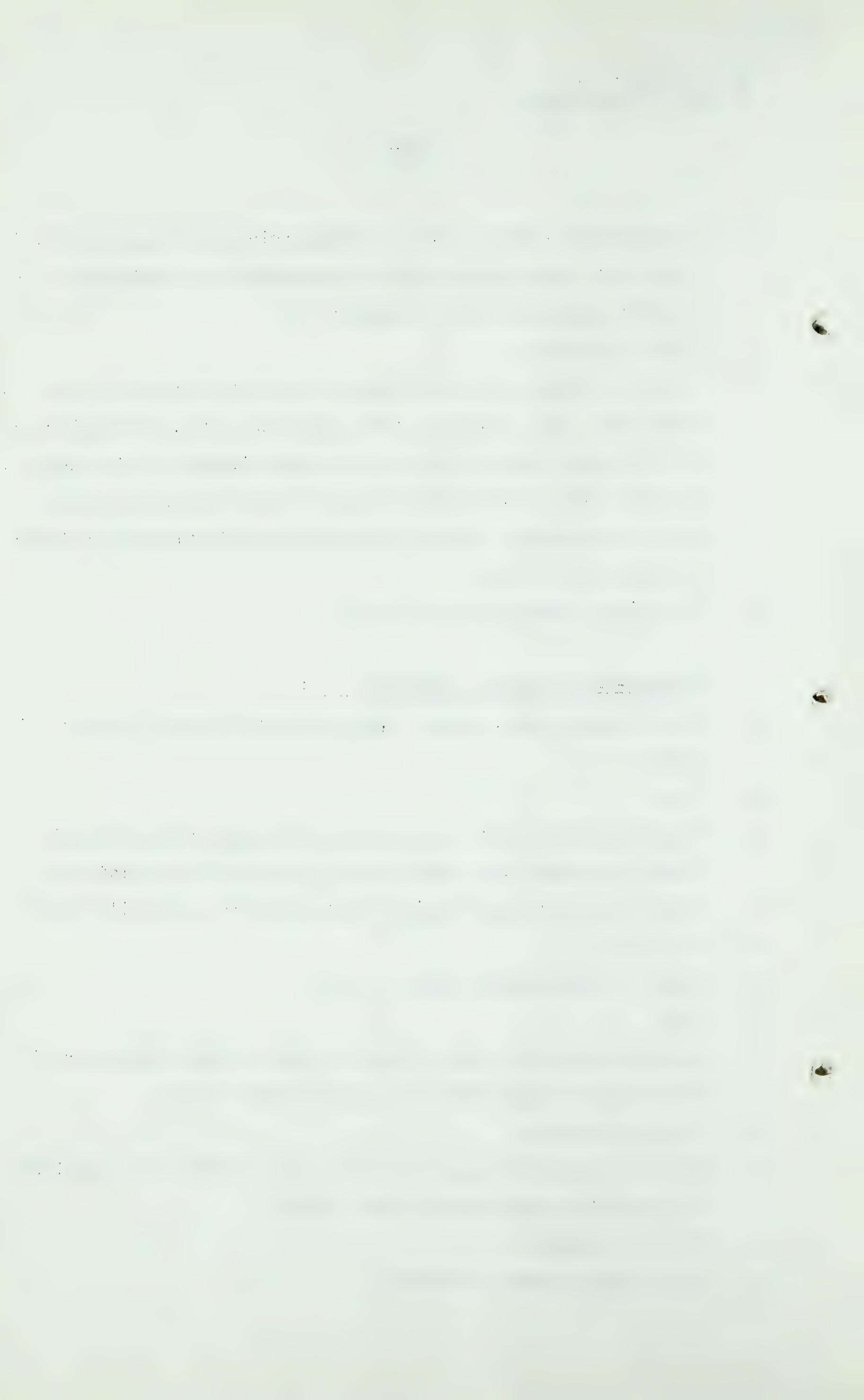
Q And in order to do that he had to find out the ownership of the lands through which the pipe line was to go?

A That is correct.

W And we discovered that for a good many hundreds of miles the line went through Federal Crown lands?

A That is correct.

Q And no improvement districts?



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A That is correct.

Q And on my advice this matter of general taxes was reconsidered?

A That is right.

Q And cut from 1% to one-half of 1%?

A That is right, that is the reason for the half of 1%.

Q And the privilege taxes were taken into account in arriving at that one-half of 1%?

A Yes.

Q Just one other thing, if I may, this 1906 miles that you show in your full development and the intermediate stage also includes the branch lines?

A Yes.

Q Very many of them very small?

A From four inches on.

Q And they serve a very wide area?

A Yes.

Q Particularly in the Spokane area and the Inland Empire area?

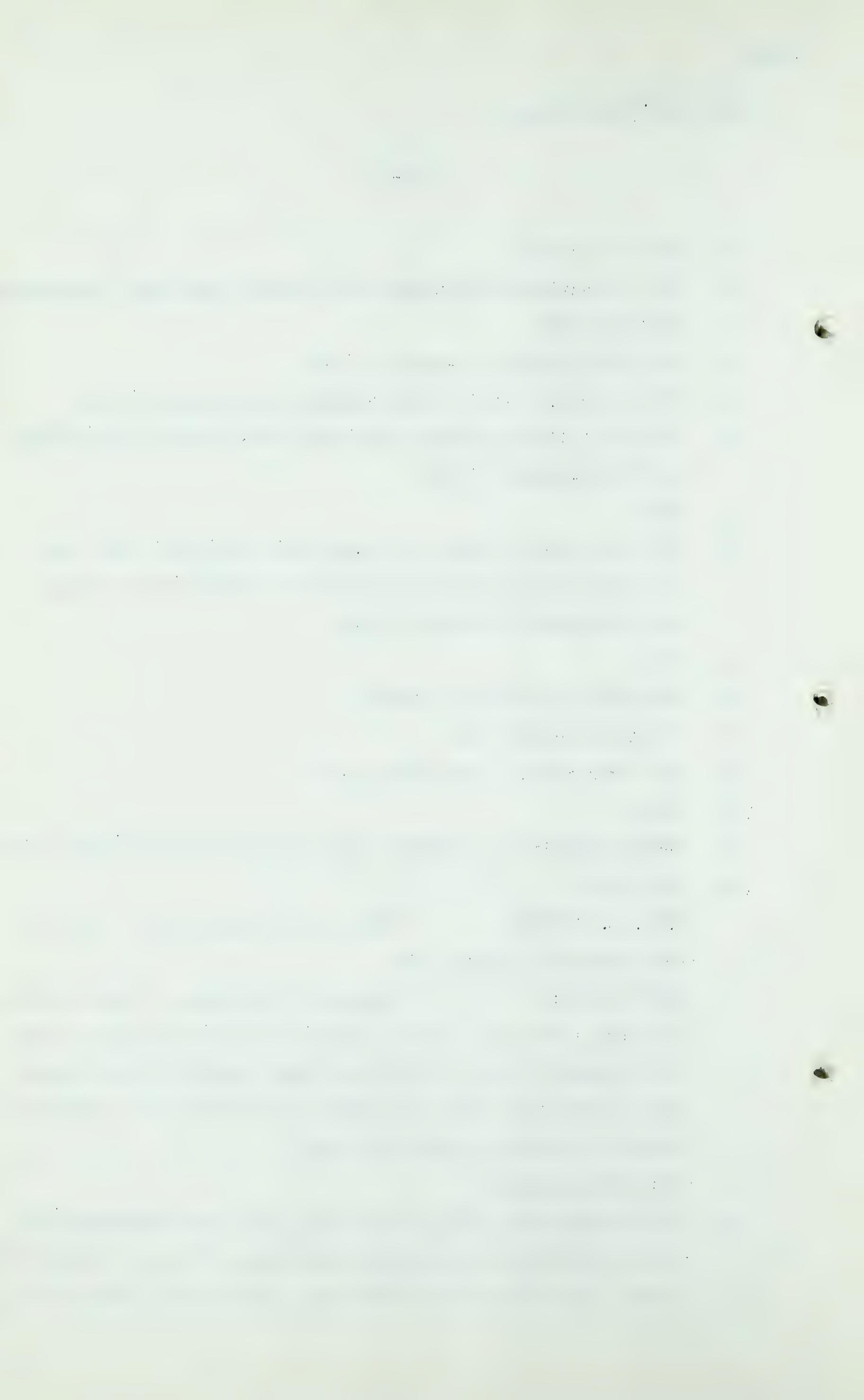
A Yes, sir.

MR. C. E. SMITH: What is the basis for the note at the bottom of exhibit 121?

MR. McDONALD: Maybe, Mr. Chairman, I should refer to that. The price set out there is the price which is set out in exhibit 54, the document with respect to Gas Supply, and is the price which is offered by Westcoast to producers. That is 7 cents in the first year.

A $7\frac{3}{4}$ in the second.

Q $7\frac{3}{4}$ in the second, $8\frac{1}{2}$ in the third, $9\frac{1}{4}$ in the fourth and 10 in the fifth year, and then increasing at the rate of 1/3 of a cent each year to the 20th year, the terminal price of 15 cents



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Q MR. C.E. SMITH: That is from Exhibit 34, is it, Mr. McDonald?

A Yes, sir.

CROSS-EXAMINATION BY MR. H.J. MacDONALD:

Q Mr. Poor, in your Exhibit 120, on page 3, your total market there is given as 81 billion 208 million?

A That is right, the estimated max. day.

Q On page 2 you give a figure of 87 instead of 81. Now, the difference seems to be that in page 3 you did not include your firm industrial load?

A No, on page 3, I think the answer to that is the peak shaving in that territory through interruptible industrial.

Q If you look at the total, sir, you will find that this 81 on page 3, you have included domestic and commercial as it appears in the three places on page 2. You apparently have not included the firm industrial or interruptible industrial?

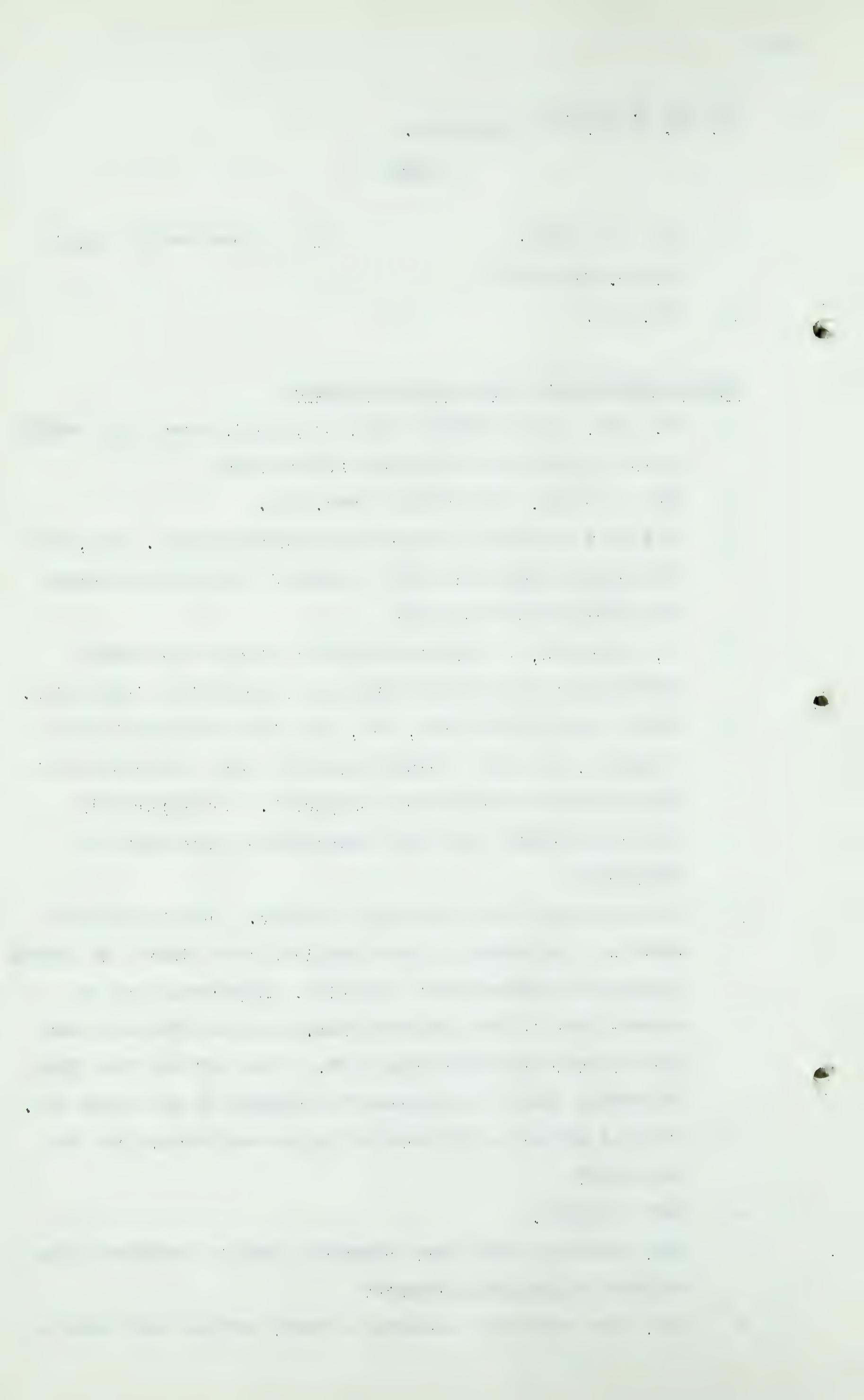
A I will see if I can assist you in that. Just by making a check -- I am under a little handicap here since I am trying to explain someone else's exhibits. Apparently you are correct that in the estimated max. day there has not been carried over the industrial firm. I can not say that that is exactly what it is because the figures do not check out.

Q It would appear to be included in one and perhaps not in the other?

A That is right.

Q Now, should not the firm industrial load be included in an estimate of gas requirements?

A Yes, they should be included in that, but you also have to



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take into consideration in getting your balance the peak shaving that might be developed in any given market area.

Q Now, on page 2, your spur line to Hanford, interruptible industrial, those are the proposed sales to the Atomic Energy Commission, are they?

A That is right.

Q And how is that amount arrived at?

A That is our best judgment based on the testimony that developed in this Hearing.

Q Does it represent the complete fuel requirements of the plant?

A No. I would say definitely not.

Q Is there any contract?

A No.

Q Now, will the Atomic Energy Commission buy gas on an interruptible basis?

A Well, we believe that they would.

Q You do not know definitely?

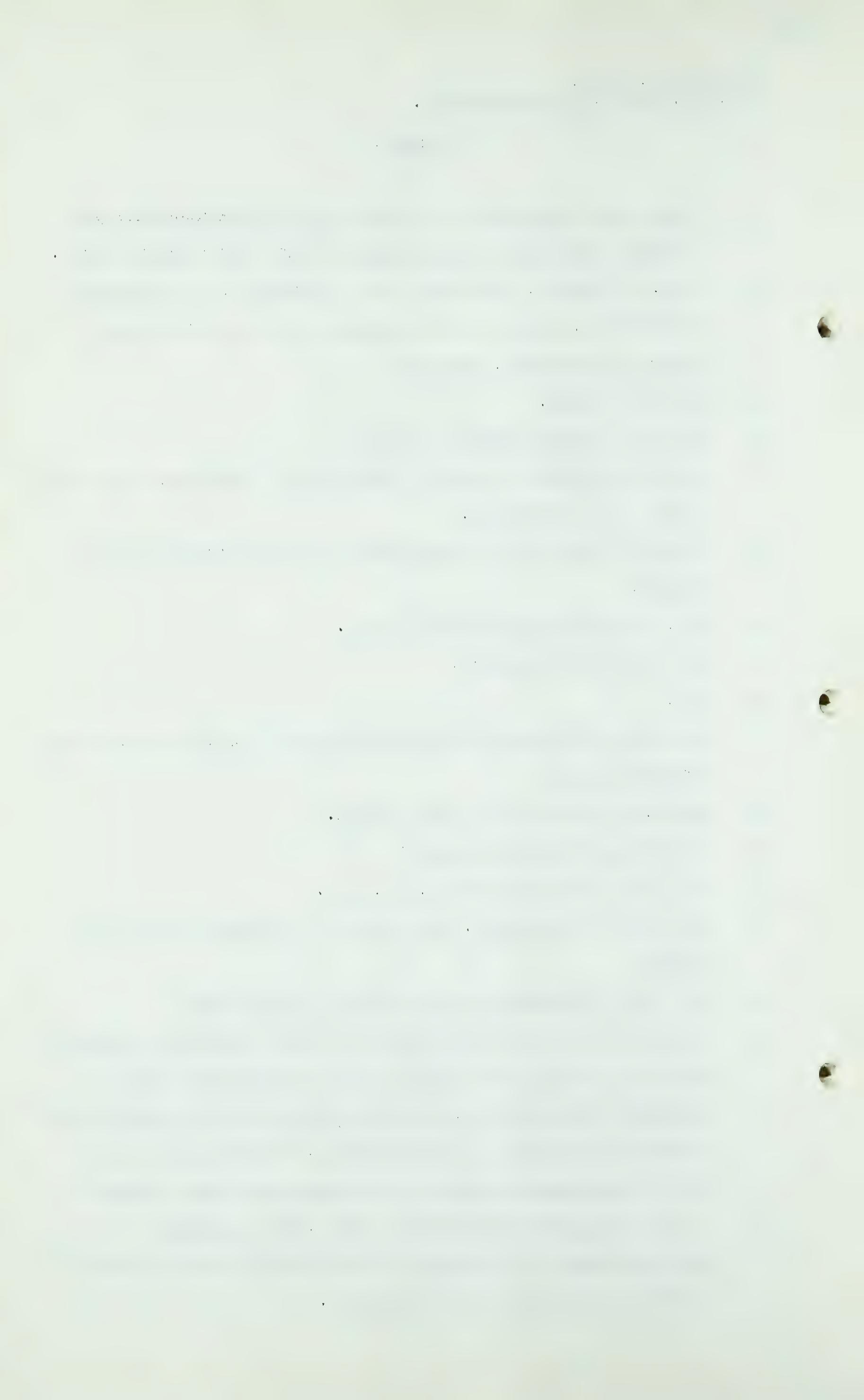
A I do not know definitely, no, sir.

Q One way or the other. What fuel is presently being used there?

A It is my understanding that coal is being used.

Q I understand that in Exhibit 57 Pacific Northwest estimated sales to Hanford at 7 million 300 thousand Mcf. and the Northwest Natural Gas, in Exhibit 66, shows an annual sale of 9½ million Mcf. on a firm basis. Why is there such a great discrepancy between this figure and their figure?

A I can only give conjecture on that, but I assume it is the difference in thinking of the various market experts in their opinion of the situation.



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Exam. by Dr. Govier.

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Q Well, is this based on any market expert's estimate?

A The estimate is, yes, sir.

Q Or was this an estimate made because of previous evidence that has been given?

A I could say it was made largely on the basis of previous testimony given.

Q Yes. And it was thrown in to round things out?

A That is right.

Q What would happen to the whole project if the interruptible amounts shown on page 2 were thrown out entirely?

A Well, the project would not be as interesting as it is.

Q The financing might be very difficult?

A It might.

Q MR. BREDIN: Mr. Poor, I wonder if you can tell me what rate of bond interest you used in item 19 on Exhibit 121?

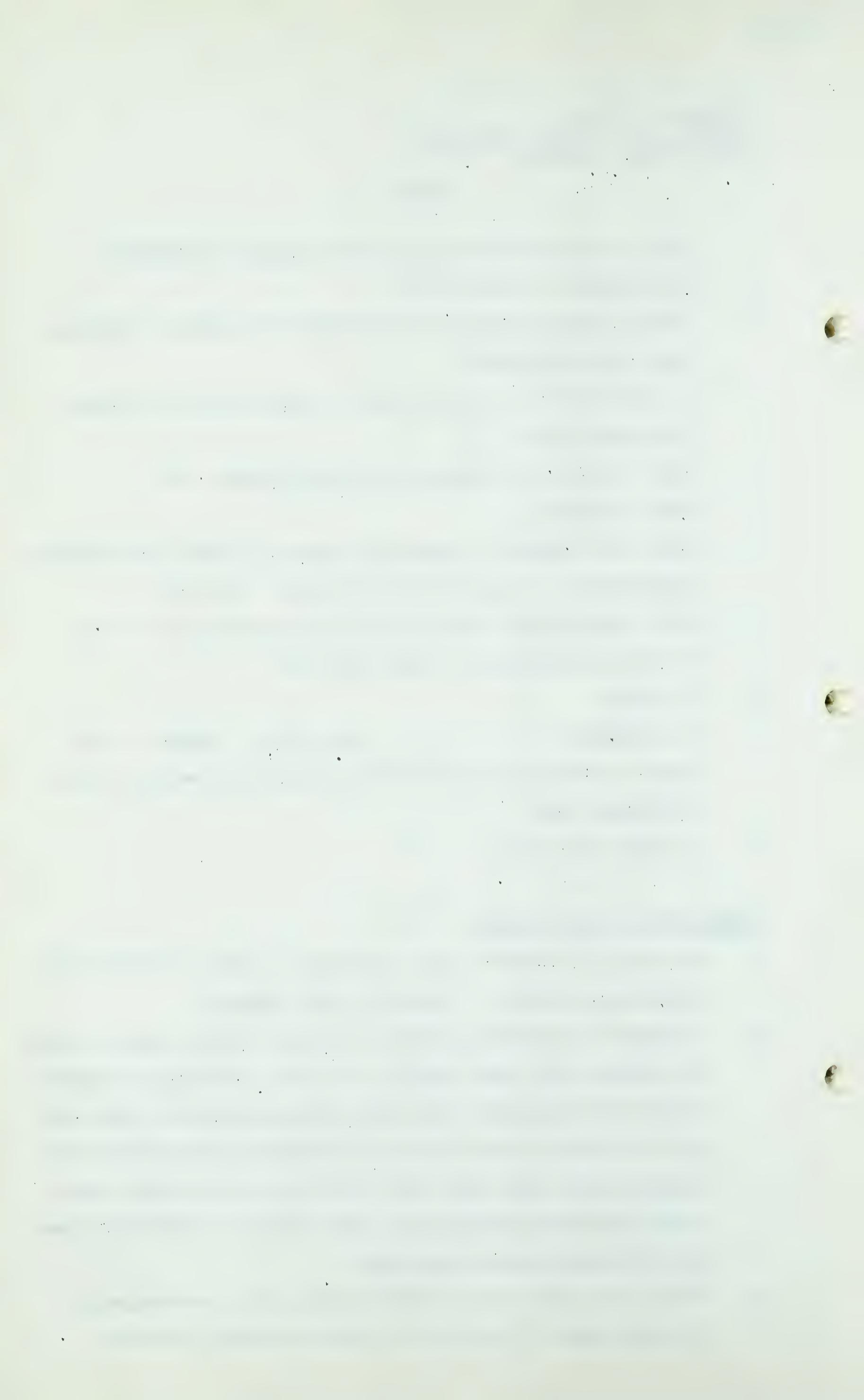
A It was 4 per cent.

EXAMINATION BY DR. GOVIER:

Q Mr. Poor, I wonder if you would tell us why you changed the operating pressure return to 980 pounds?

A Changed the operating pressure return to 980 pounds in order to maintain the same diameter of pipe, it being my thinking that that represented the best economics at this time, and also it made it much easier to re-compute the system by not changing the size line to 26 inch but still getting inherently the same capacity that would adhere to a 26-inch line at 750 pounds working pressure.

Q Would you give a short dissertation on the advantages and disadvantages of operating at those various pressures.



William B. Poor,
Exam. by Dr. Govier.

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What are the trends in the United States about it?

A I think the trends in the United States today are toward higher pressures. I think that there are so many things to be taken into consideration other than just sheer dollars and cents economics, that it is pretty hard to say where you would build a 950 or 1,000 pound line and where you would lower the pressure. Theoretically, working under the A.S.A. code for pressure piping there should be no difference as to the pressure operated other than a dollars and cents figure, but in getting into congested areas I think when one does have to give consideration to the degree of disaster that might occur by virtue of the higher operating pressures. Other than that I think it is a matter of pure economy.

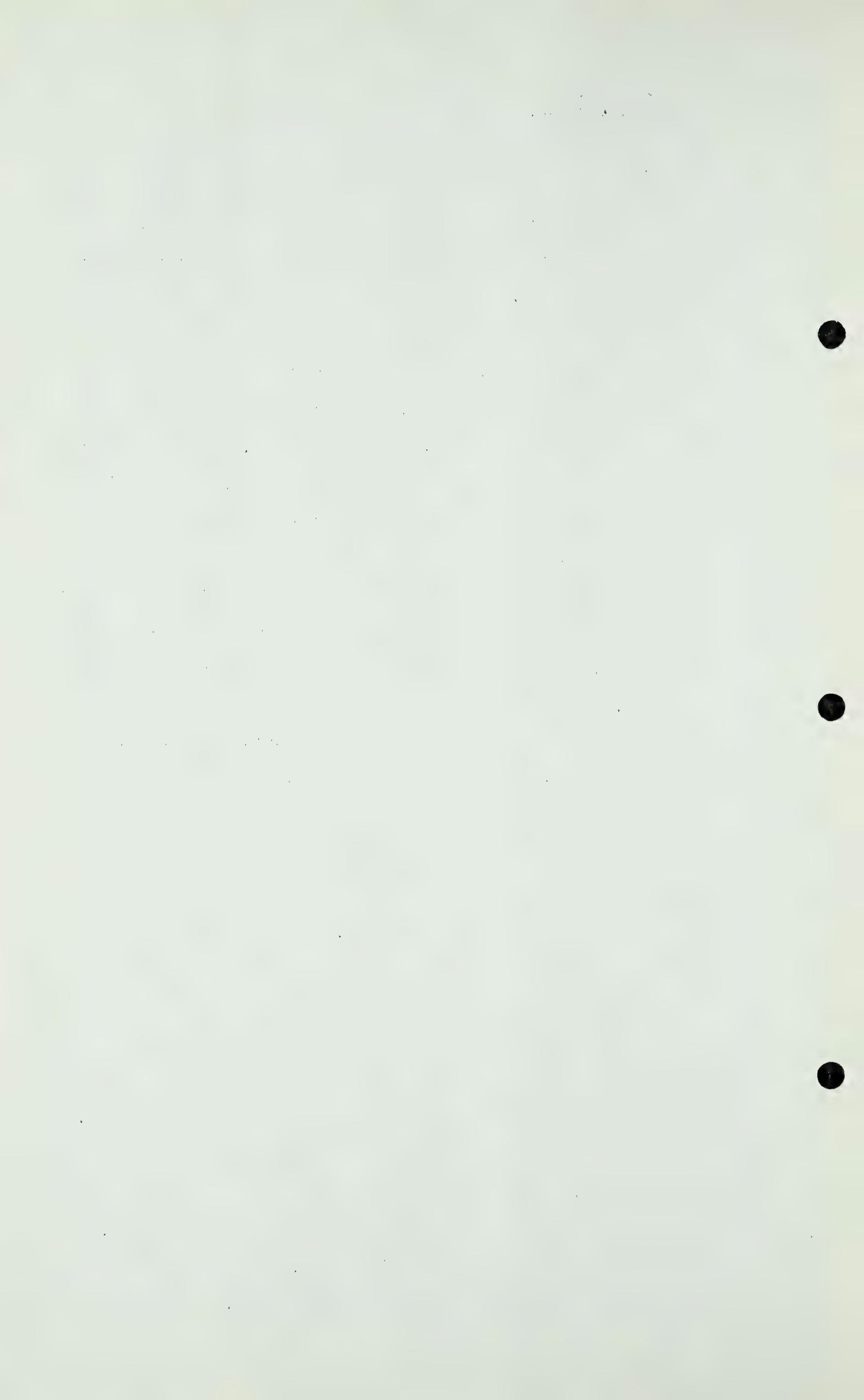
Q Do you think the economics of this particular project would be much different had the line been re-designed at 750 pounds?

A 750 pounds and going to a larger diameter pipe?

Q Yes.

A No, I do not think that it would. You have not reached a limiting factor of diameter in relation to construction in extremely rough country. I would say if we had had to go to a 30-inch there are sections of this line that would have possibly to increase the pressure between the pressure stations in order to work under a smaller diameter pipe.

Q This matter that was raised by Mr. MacDonald in connection with page 3, according to my arithmetic if you add the figure 482 on page 2 and the figure 1760 from page 2, those being the firm industrial load, one on the main branch and the other one on the Trail line, the totals



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Exam. by Dr. Govier.

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check out?

A Yes.

Q What I was wondering, whether those were omitted for any purpose or whether it was a slip and whether we should consider them?

A I am afraid I can not answer that. This Mr. Sample's exhibit and I thought I had all of the answers to it from a practical standpoint, but apparently I have not.

MR. McDONALD: I might point out that page 3 is the detail of the domestic and commercial and it does not purport to deal with the industrial at all. You see, it is pipeline, domestic and commercial, total sales of domestic and commercial, so that the calculation you have just made is the correct calculation.

DR. GOVIER: For the total?

MR. McDONALD: For the total.

Q DR. GOVIER: Mr. Poor, would you look at page 2 of Exhibit 121, please. I was wondering if you, were able to give us the return on equity capital corresponding with item 25?

A It would be in the order of $6\frac{1}{2}$ per cent and 4 per cent respectively.

Q Which figures are in the initial stage?

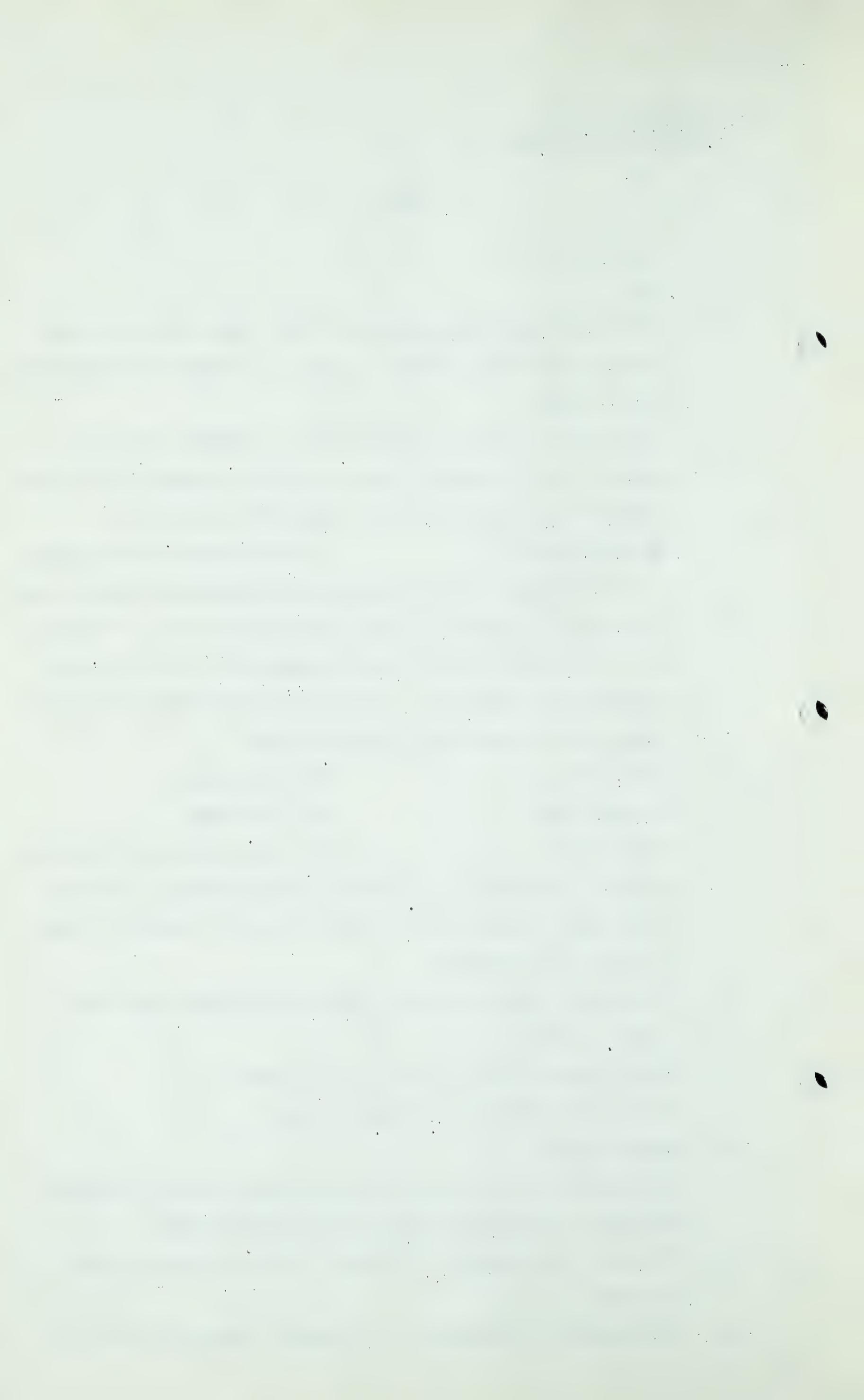
A That is in the initial stage, yes.

Q $6\frac{1}{2}$ per cent?

A $6\frac{1}{2}$ per cent is at average sales price of 35 cents and $4\frac{1}{2}$ at the average sales price of 32 cents.

Q Would it be possible to attract equity capital at that return?

A That would be debatable as a general proposition but in



William B. Poor,
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this particular instance I think you would have no difficulty at all with the faith that those people concerned with this project have.

Q Could you tell us how to make the corresponding calculations for the other stages, if you could tell us where we could get the equity capital figure?

A What I did was, I took 25 per cent of the capital cost as reflected in item 9 as representing substantially the equity.

Q That percentage was increase through the years, would it not?

A It would, as the bonds are retired, yes, sir.

Q So one would have to follow a different procedure for the intermediate stage?

A One would have to follow a different procedure for the intermediate stage to the extent that the bonds are retired.

Q Do you have the return on the rate base computed?

A No, I do not.

Q In the initial stage would the rate base correspond with item 9?

A Substantially so.

Q Then the return on the rate base in the initial year would be item 25 divided by item 9?

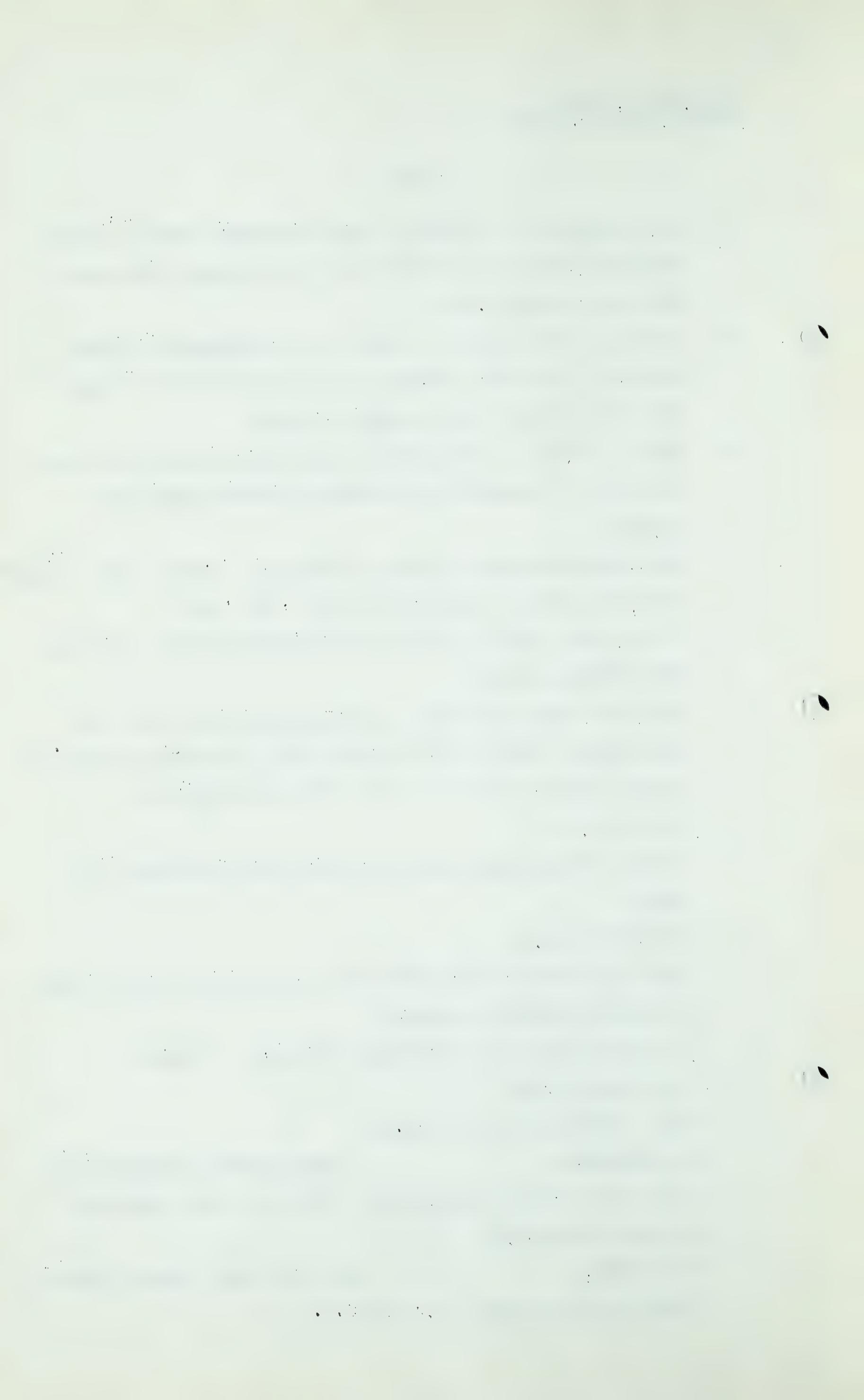
A No, that would be an incorrect statement, I think.

Q Oh, plus item 24?

A Yes, I think that is correct.

MR. McDONALD: I might point out that item 18 is the utility income item. Item 18 is the basis for the rate of return.

THE WITNESS: And that would result respectively in percentages of 4.4 and 3.8.



William B. Poor,
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Q DR. GOVIER: I take it, Mr. Poor, it is your thinking that while the financing of the project yielding this rate of return on equity capital might be difficult, if considered all by itself, but when one considers the prospects you believe it would be readily financible?

A That is correct. I think there would be no difficulty in financing the bond issue as it is set up here on the basis of proven reserves.

Q THE CHAIRMAN: Do you think you could get it at 4 per cent?

A I think so. That has varied over the last twelve-month period from quite a bit less than 4 to in some cases -- the highest I have known in conversation about is $4\frac{1}{4}$, but that is a matter that I think the people that are more familiar with it than I am might say. It varies from day to day, almost.

Q DR. GOVIER: The equity income is quite sensitive to a slight change in bond interest rate, isn't it?

A Yes.

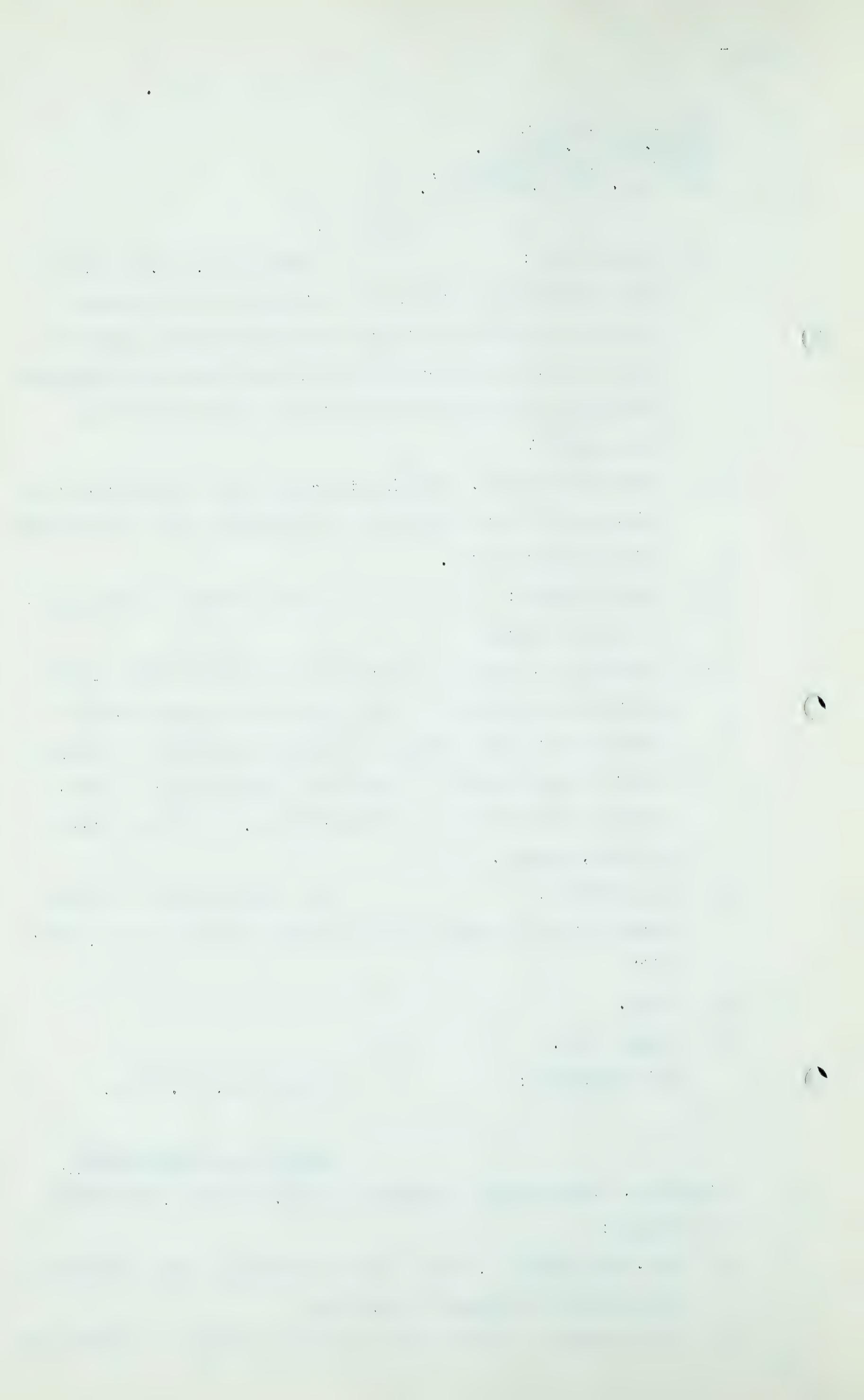
Q Thank you.

THE CHAIRMAN: Thank you, Mr. Poor.

CHARLES R. HETHERINGTON, recalled, already sworn, examined by Mr. McDonald, testified as follows:

Q Dr. Hetherington, would you deal with the part of Exhibit 120, which is design of pipeline?

A The design of pipeline is included in item 3 of Exhibit 120



Charles R. Hetherington,
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and comprises a flow sheet entitled, "Transmission System Flow Diagram", followed by a table giving the compressor stations horsepower installations at the fifth year by station number.

(Go to page 3339)

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C. R. Hetherington,
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Q Yes?

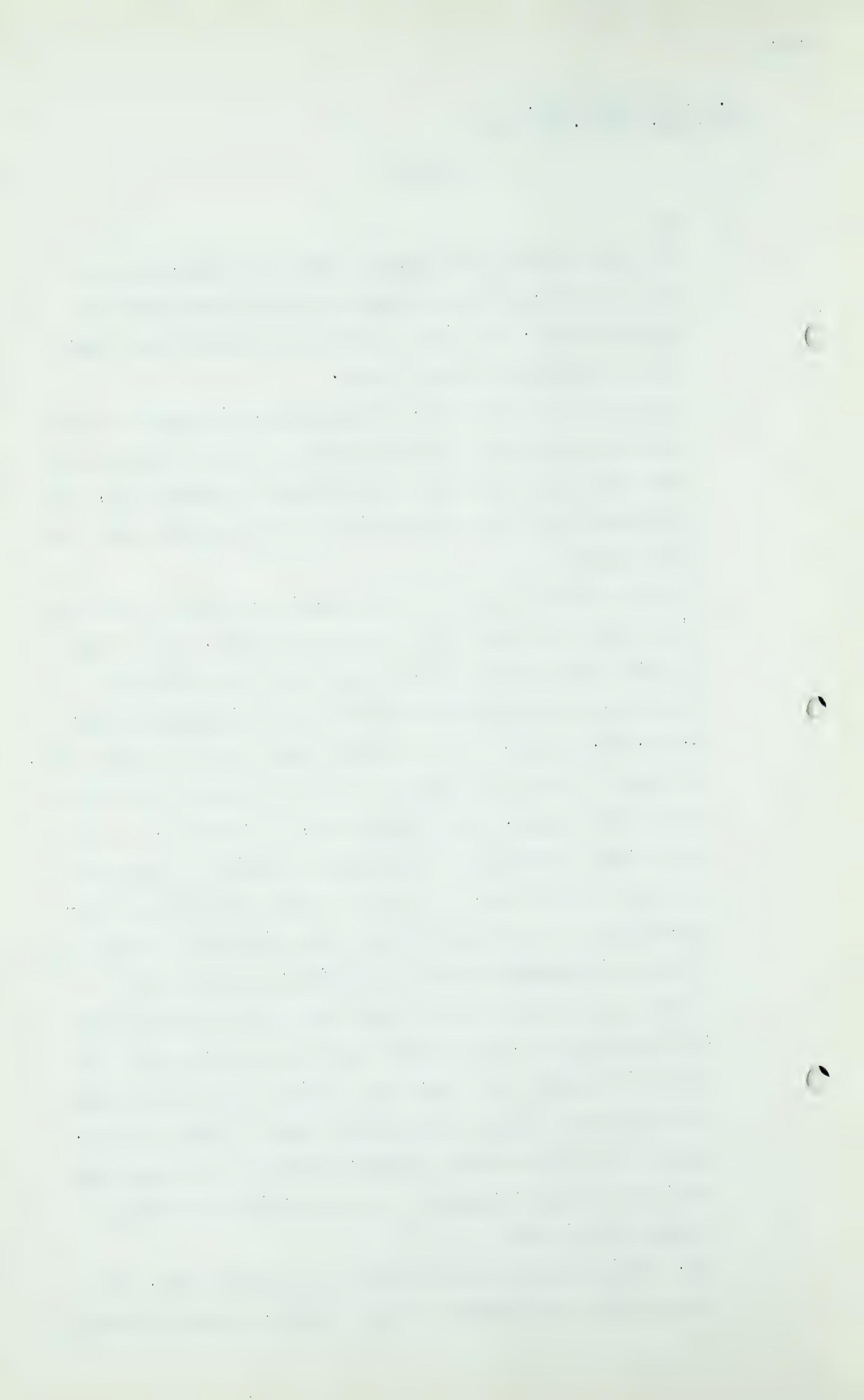
A This full diagram was prepared using the Ford, Bacon & Davis formula, and the methods outlined previously in this testimony, and given in detail in Exhibit 44, which was the previous design exhibit.

Q If you will deal now, Dr. Hetherington, with Exhibit 121, the initial stage of 42 billion feet field purchases, and would you deal with that having regard to Exhibit 50, the deliverability of the Peace River gas to provide pipe line requirements?

A Exhibit 50 is a summary of the deliverability of the Peace River gas to provide pipe line requirements, and on page 1 of that exhibit it is pointed out that the recoverable reserves, as estimated by the Westcoast witnesses, total 1,126,900,000 Mcf. 42 billion cubic feet per year, then, in terms of years, is on the order of 27 years' recoverable gas in the ground. This Exhibit 50, on chart No. 1, also has a curve showing the total deliverability of gas from the Peace River area. In order to meet the peak load requirements of the initial stage of development of this project a total withdrawal for the Peace River area of some 750 billion cubic feet can be taken while still meeting peak load requirements. This means that at an average rate of 42 billion cubic feet there is a deliverable gas for pipe line purposes from the Peace River area of some 18 years.

Q And the 42 billion comes somewhere between the second year and the third year capacity, as set out in your Table 1 of your exhibit 50?

A Yes, and is shown on Exhibit 121 on the first page. The four stages of development are the logical stages of develop-

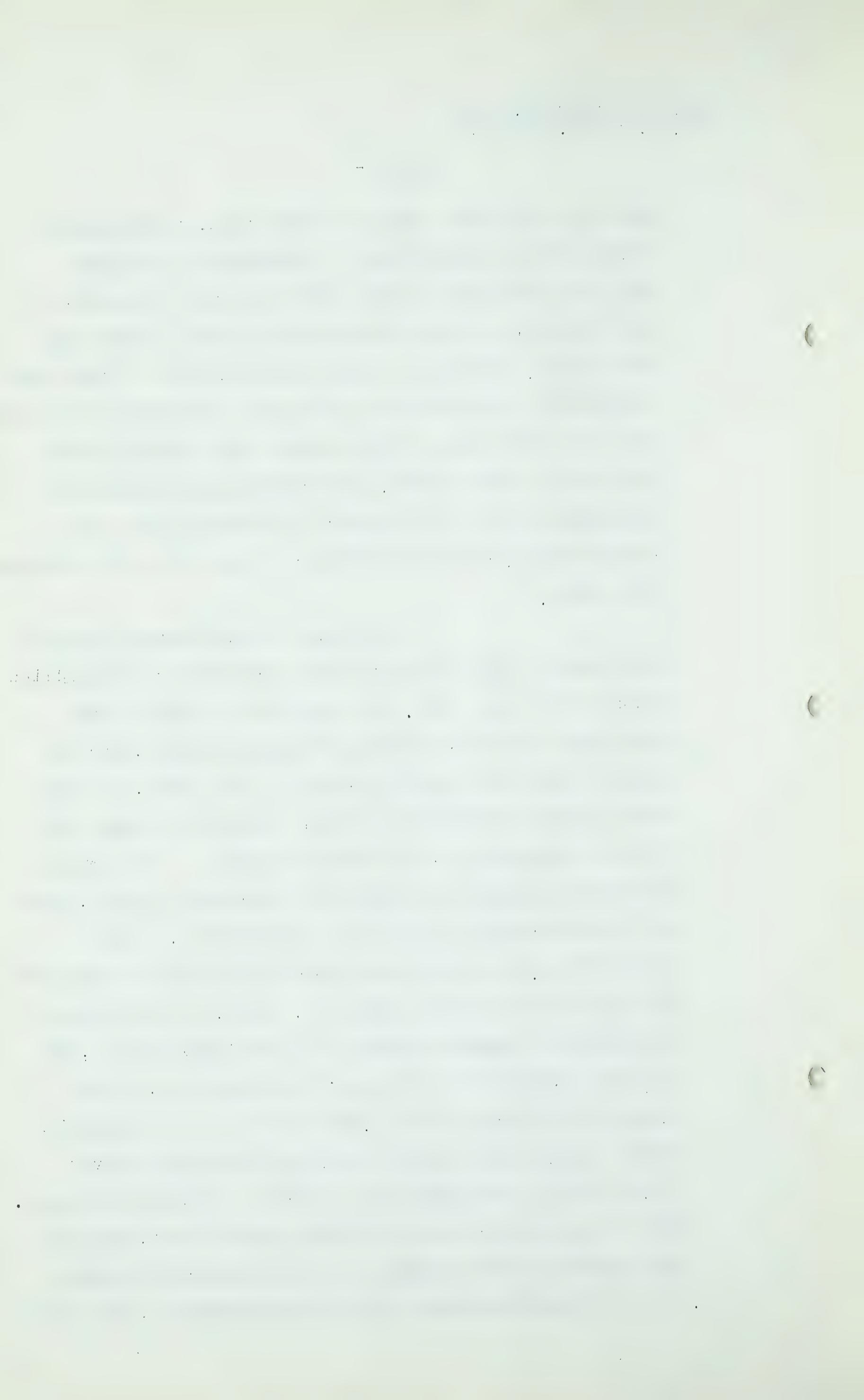


C.R. Hetherington,
Dir.Ex. by Mr. McDonald

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ment of a pipe line project of this type, particularly because of the small amount of compressor horsepower involved in the first year, and it is quite economic, or quite general to build the project in three rather than five staaes, and that is quite characteristic of pipe line construction, that while the estimates are prepared for five year, when only one or two stations are involved in the first two or three years, the construction program for completion to full development is generally put in an initial stage, and an intermediate stage and a full development stage.

This page 1 shows that the project can be built with an initial stage capacity of 155 million cubic feet a day. Mr. Poor has shown on page 2 that that stage is an economical and feasible stage, and not only will pay all carrying charges on the debt, but will meet the bond retirements and have additional money left over for dividends on the equity capital. The project then can be expanded through the intermediate stage, which is a logical stage in pipe line development, to full development, and at full development the costs of transportation per Mcf. are near minimum. Now, if it is desired to expand the capacity beyond this full development, the ultimate capacity of this project as laid out, is 400 million cubic feet per day, which is an in anticipation of the development of the reserves of the Peace River area and the development of a market to consume that gas. While the stage is only 155 million cubic feet, the pipe line system has been designed with the intention in mind that it should be capable of a large expansion, should the



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gas become available.

The initial stage was selected as such that in our opinion there are sufficient reserves for financing, and that the volume of gas passing through the line is sufficient to make the project economical. Of course, those two are related. The pipe has been sized with heavy wall thickness, with great excess of capacity, in order to meet an expanding market, should the gas supplies become available. From a technical standpoint, the initial stage involves only a few compressor stations.

Q THE CHAIRMAN: Could you give us the load factor at various stages as you go through this, Dr. Hetherington?

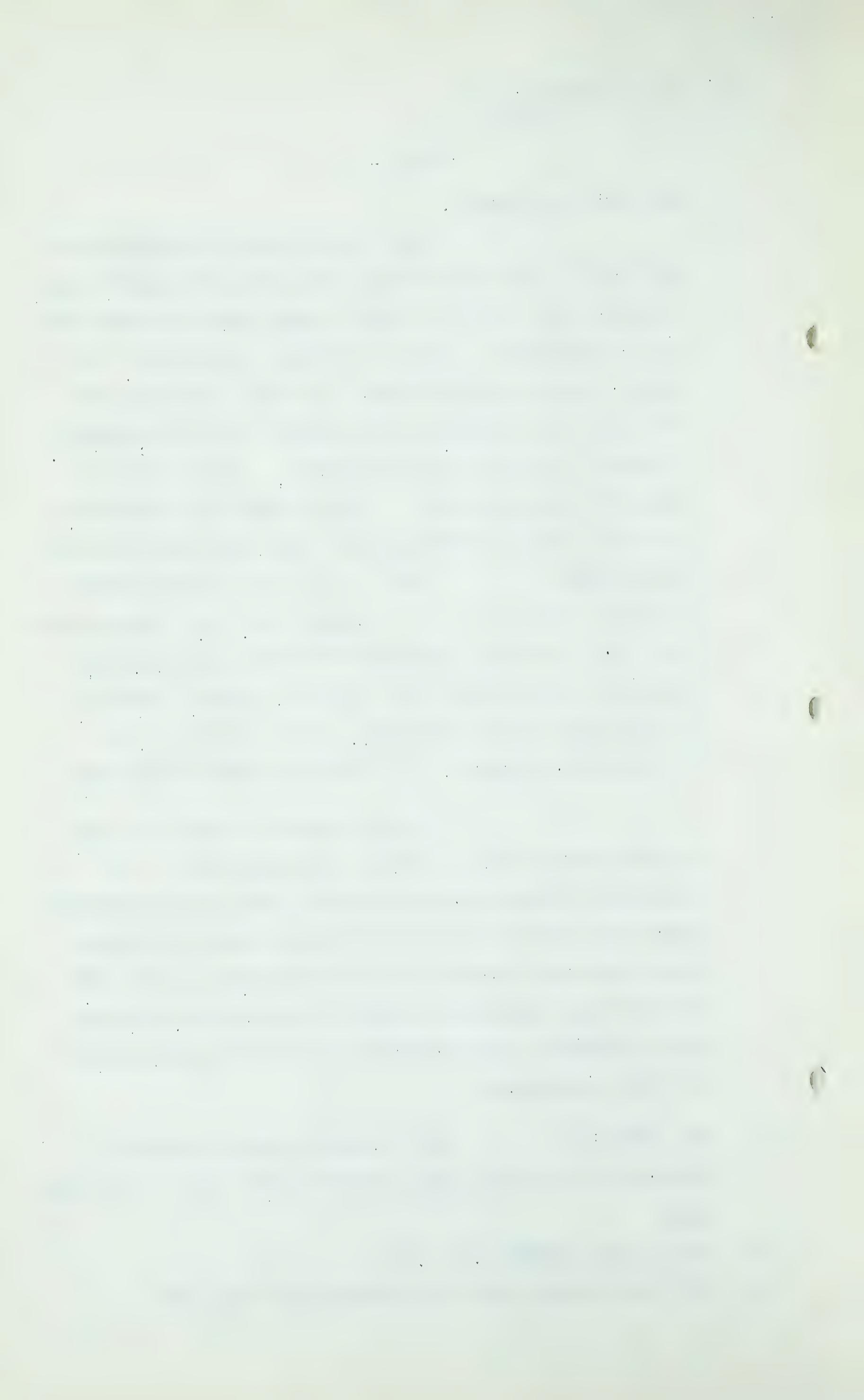
A Yes, sir. The field compressor station in this initial stage is of 7800 horsepower, one line station, Number 4, is required at 4200 horsepower,, and a station in the United States, Number 8, of 3000 horsepower is required.

The load factor in the first year, or the initial stage, is 71%; the load factors in subsequent stages are on the order of 80%, the intermediate stage, and then the load factor for the full development, after the space heating has been developed, is about 80%. And the load factor with regard to the ultimate capacity is an assumption and was carried over at the same factor as full development.

Q MR. McDONALD: The designed capacity, sales at markets, on the first page of Exhibit 121, that is the peak day?

A That is the maximum day, yes.

Q And your average day is by dividing 365 into your



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40,500,000 Mcf.?

A That is correct, yes.

Q Now, if you will just deal with the second page of Exhibit 121, Dr. Hetherington, first, regarding the proposal of paying an accelerated price to the producers. Let us assume that the 42 billion is going to be what the deliveries are to the line in the first five years, could you still pay the accelerated price for gas to producers over the five years?

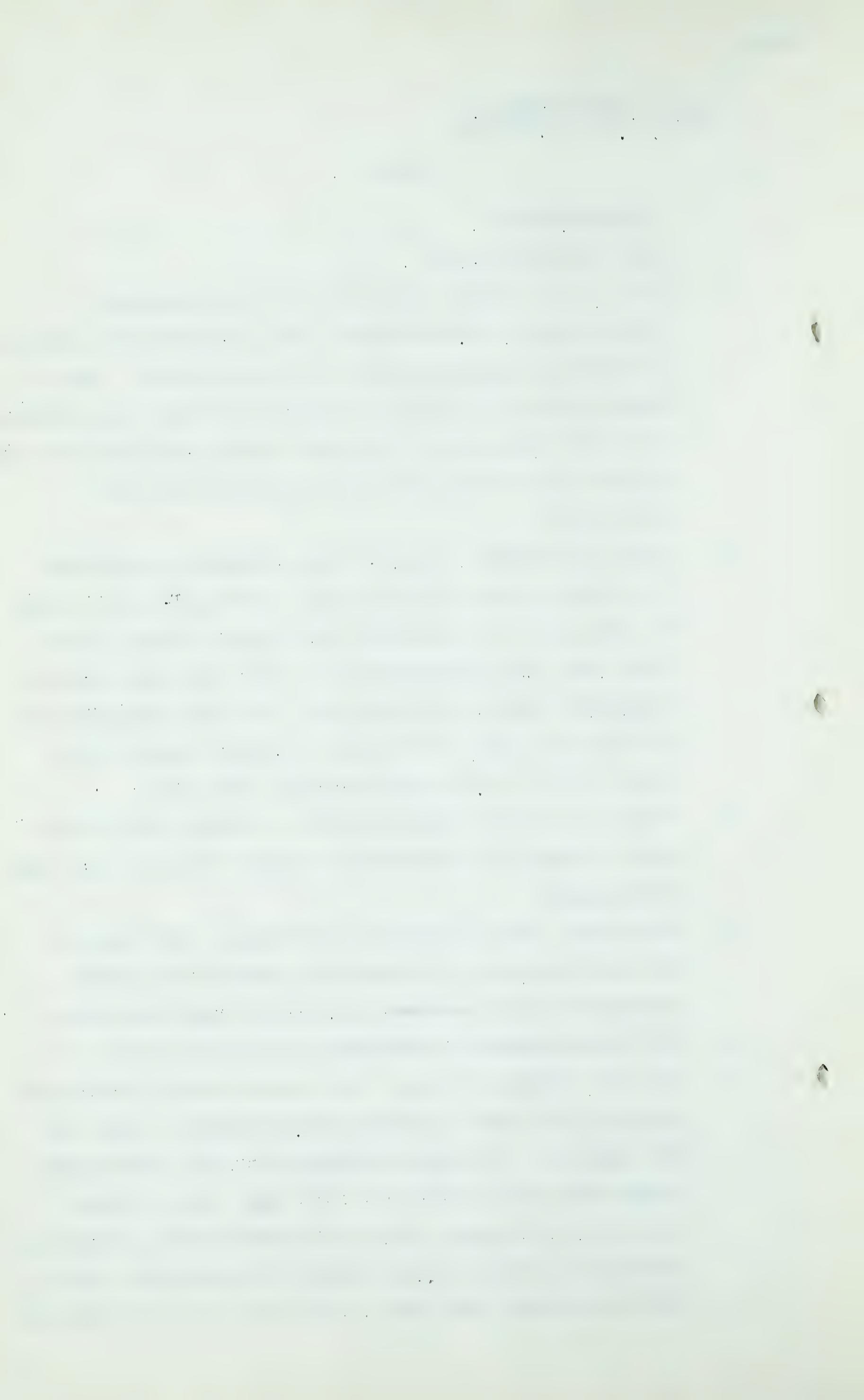
A Should the volume of gas for this pipeline be restricted to 42 billion cubic feet per year forever, the price could be increased to the producer, starting at 7 cents in the first year, and increasing $\frac{3}{4}$ of a cent each year, until it reaches 10 cents in the fifth year, and then increasing $\frac{1}{3}$ of a cent per year for 20 years, to reach a price of 15 cents per Mcf. to the producer in the 20th year.

Q Then, let us assume again that the 42 billion feet is all that is going to be transmitted through the line, what will then happen?

A Should this line be limited to 42 billion cubic feet in each year, the rate of return will increase each year as depreciation is accrued, and the rate base decreases.

Q That would improve the earnings on the common stock?

A Yes. As a matter of fact, the earnings during the initial stage are very good, as shown for this initial stage, and will improve. It is quite customary to plan a development program such that you get the full legal rate of return in about the 5th year, and in the initial years, in order to build up the loads, to sell the gas at a low price, and in order that these loads can be built up, it is customary to



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take less than the full legal return during the first few years of operation. This project would reach the full legal return at 42 billion in about 6 years.

Q Yes. And anyone purchasing equity stock would have in mind the eventual return rather than the first year?

A That is correct. As a matter of fact, the first year return is not bad at all for a natural gas company.

Q As indicated in the initial stage on the second page of Exhibit 121?

A Yes, as given by Mr. Poor in his evidence on the amount of utility income available.

Q Would you answer the other counsel, Dr. Hetherington?

.....

CROSS-EXAMINATION BY MR. NOLAN:

Q Just one matter I would like to ask you about, if I may, Dr. Hetherington. Would you mind looking at your flow diagram in Exhibit 120?

A Yes, sir.

Q You have it before you?

A Yes, sir.

Q You, of course, as we know, have used the Ford, Bacon & Davis formula in arriving at the figures shown on that flow diagram?

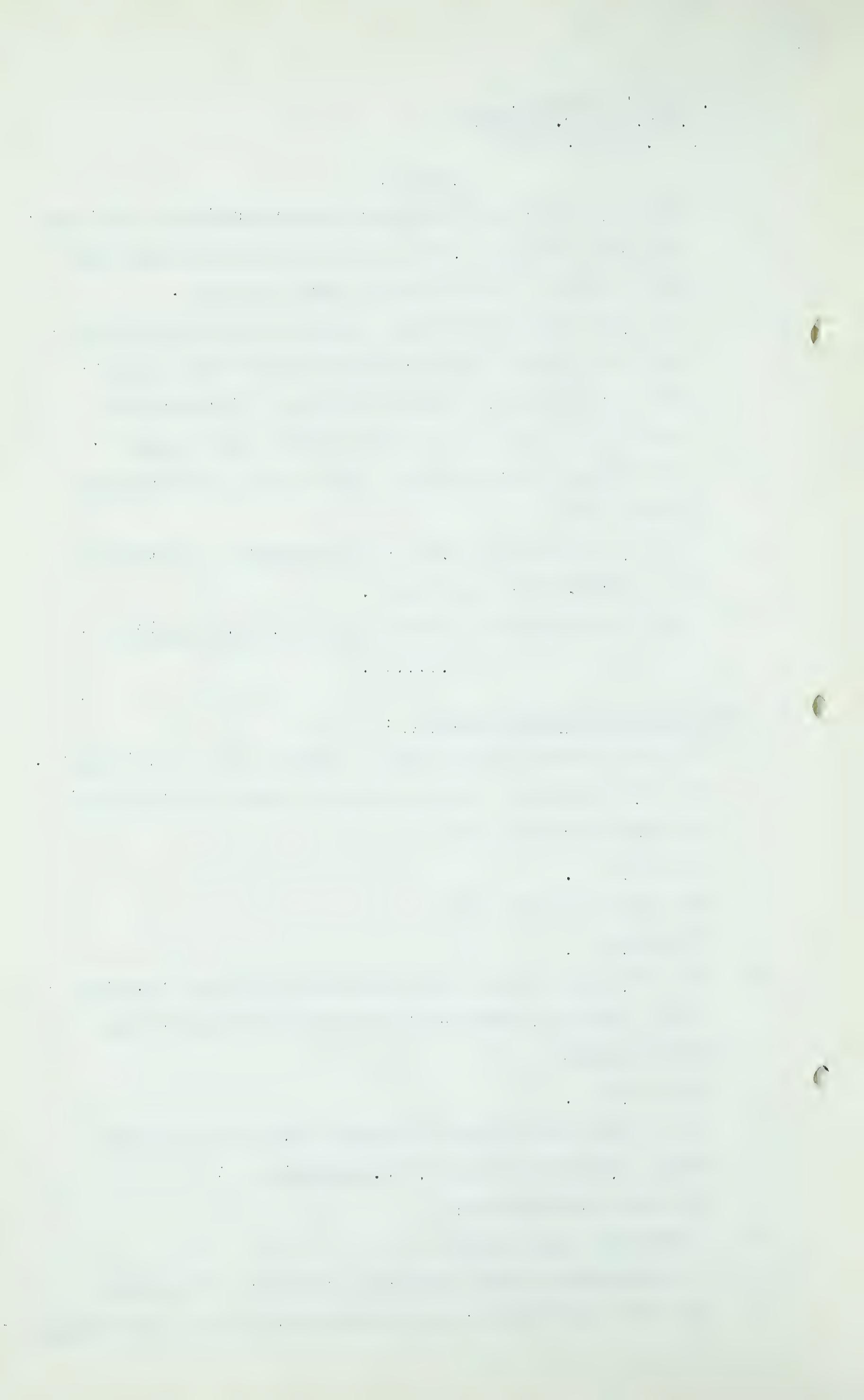
A Yes, sir.

Q If you used the Panhandle formula, the figures would be less, would they not, Dr. Hetherington?

A You mean the horsepower?

Q I mean the volume figures?

A I do not believe that necessarily follows. It depends upon the flow efficiencies that are used in the two formulas.



C. R. Hetherington,
Cr. Ex. by Mr. Nolan

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Q Well, would you agree with this statement, that there would be 10 to 12% less flow, less line flow, if you used the Panhandle formula?

A No, I would not. If the Panhandle formula is properly used, I would not agree with that, no.

Q Well, would you agree that there would be less line flow by using the Panhandle formula?

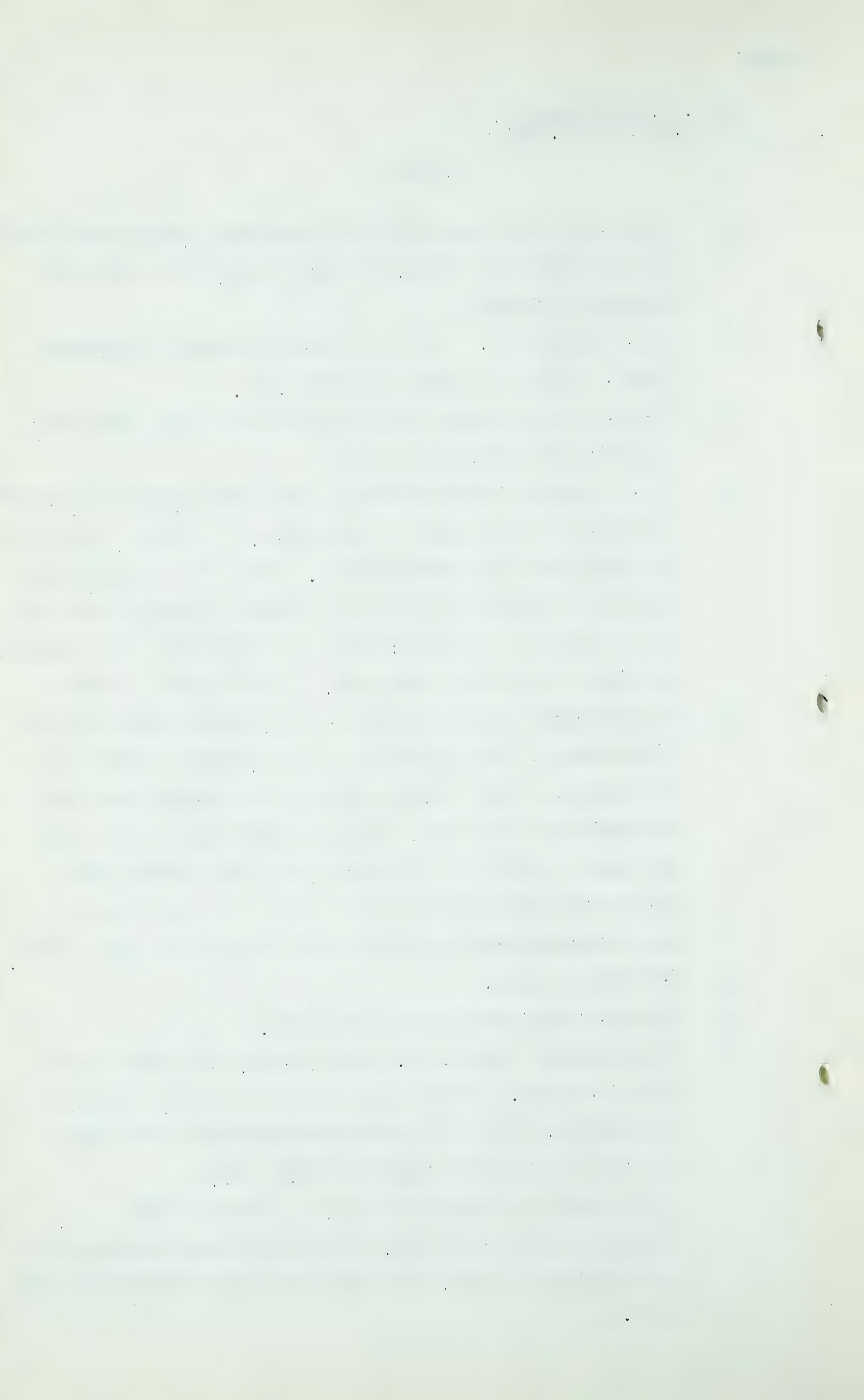
A No. I took this and checked it with the Panhandle efficiency of 92%, and it is quite in agreement. Of course, we have to use the Panhandle formula right. There are some physical factors in connection with the Panhandle formula that have to be taken into account; unless you understand the derivation it might not turn out that way. The Panhandle formula was developed for the system of the Panhandle Eastern Pipe Line Company, which operates at an average pressure of 300 pounds. That formula completely overlooks supercompressibility of the gas, which is a physical factor just the same as density or viscosity, and any calculations made on the Grizzle slide rule have to be corrected for this supercompressibility if we are to get the right answer.

Q That may be right.

A That is, for high pressure pipe lines.

Q But my people tell me, Dr. Hetherington, that where you have 370.6 MMcf. between your stations 1 and 2, on your flow diagram, that if you use the Panhandle formula you will come up with the figure of 284.4 MMcf.

A I still would not agree with you. If you use the . . . Panhandle formula correctly, taking into consideration all these physical factors, you would get substantially the same answer.



C. R. Hetherington,
Cr. Ex. by Mr. Nolan

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Q Not less?

A No, sir.

Q Tell me this, if you use the Panhandle formula taking your flow volume and your station horsepower and your compression ratio, wouldn't you get a difference in the pressure into the line, for example, in station 1? The pressure into the line at that station is shown on your flow diagram as 975 p.s.i.g.?

A Yes, sir.

Q Well, do you agree with me that if you use the Panhandle formula that there would be less pressure than is shown here on your map out of that line and into station 2? What I am getting at is this: Your figure is 785 p.s.i.g., isn't it?

A Yes, sir.

Q And I am told that if you use the Panhandle formula the answer would be 735 p.s.i.g.?

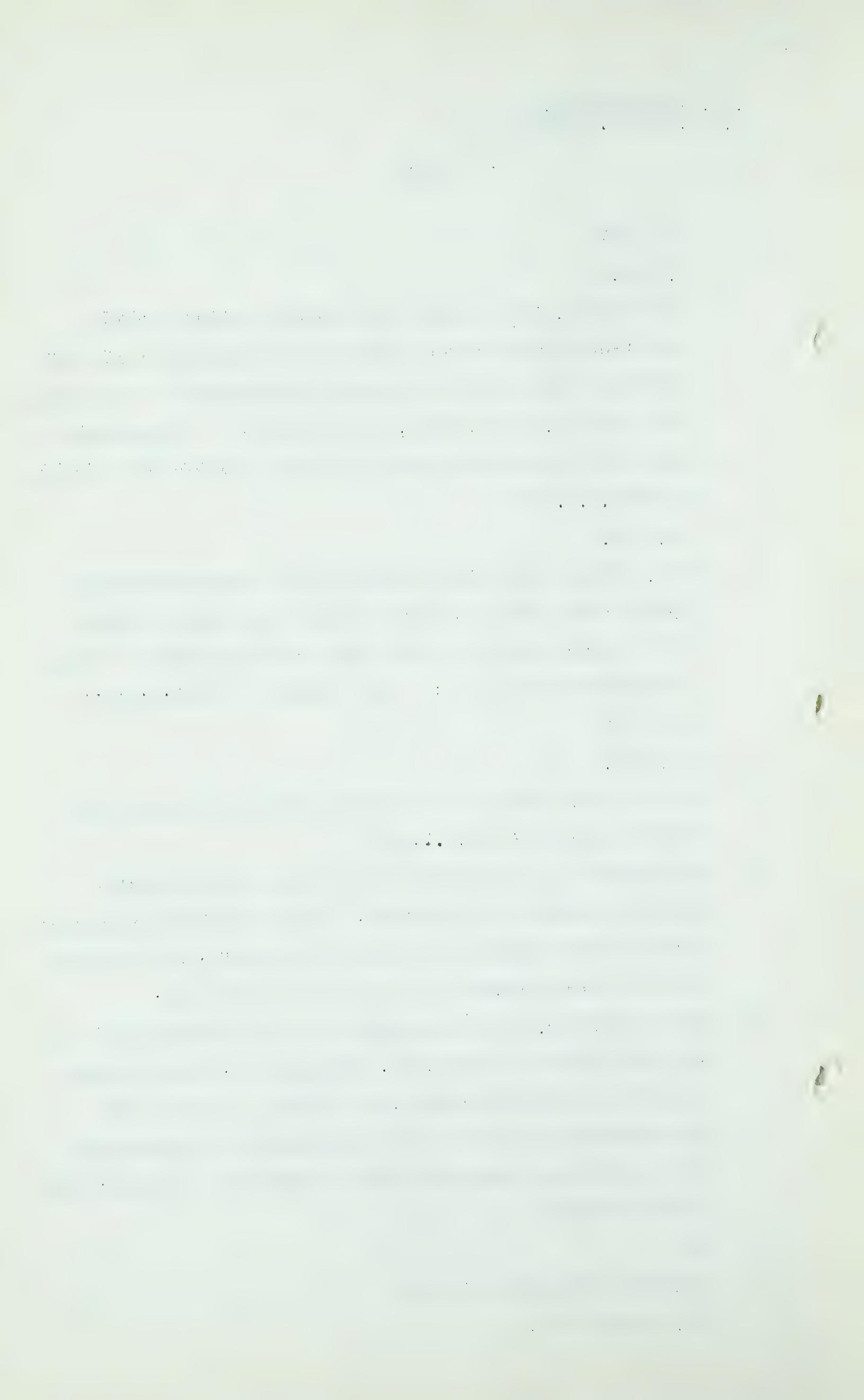
A My answer to your question in connection with formulas applies similarly to pressures. If that formula is applied using all the corrections that are necessary, you will get about the same answer as I get with this formula.

Q Well, assuming, and we have done a lot of assuming here in the last couple of years, Dr. Hetherington, assuming that I use the formula correctly, am I right in saying that these pressures that are shown on your flow diagram would be less with the Panhandle formula than with the Ford, Bacon & Davis formula?

A No.

Q You would not agree with me?

A No, I would not.



C. R. Hetherington

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THE CHAIRMAN: Mr. Smith, have you any questions?

MR. S. B. SMITH: No questions, thank you, sir.

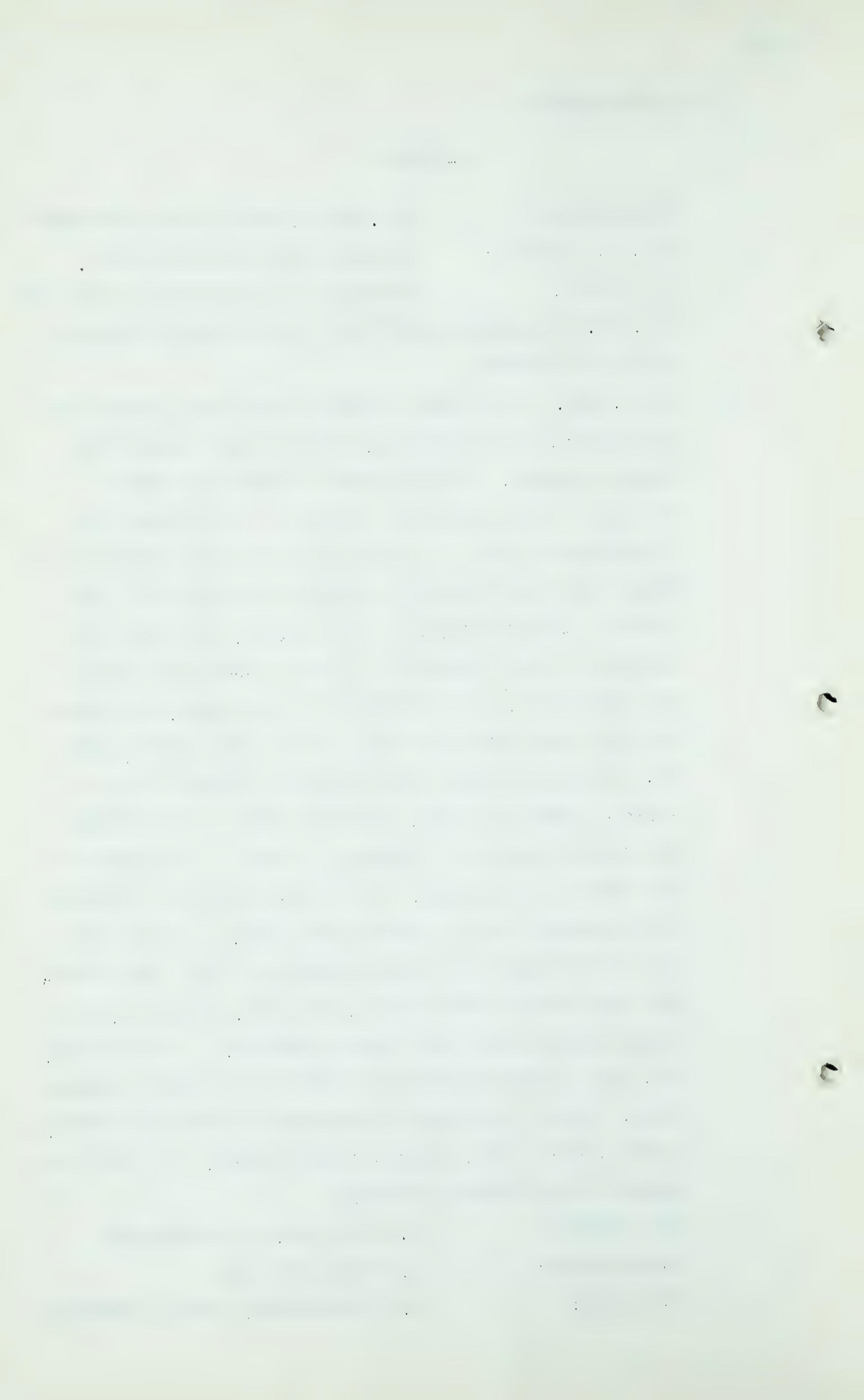
Q MR. STEER: It might be interesting if you told us, Dr. Hetherington, why Ford, Bacon & Davis developed their own formula?

A Well, yes. I am always confronted with that question at the Federal Power Hearings, because they like the Panhandle formula. But the whole answer stems back to the basis of the Panhandle formula. It was based for low pressure lines, it leaves out the supercompressibility factor, and the formula is ordinarily written for, and I think it was distributed in this paper, that gave the analysis of the conversion of this formula for use on the slide rule, and as written in that paper, the formula is quite often misused unless you are very careful with it. Now, our formula was developed starting de novo on a large number of lines, and since then I have checked the formula myself on a number of lines. Everything in the formula is rational. It is set down in a form that is convenient for us to use in our shop. I have forms set up which make the design simple, so that every man in the shop uses the same method, and that, primarily, is the reason that we developed our own formula. I should say, too, that it was developed to function on higher pressure lines. When I run down to pressures of below 300 pounds, I do not use the Ford, Bacon & Davis formula, I stick to the Weyman or the Panhandle formula.

Q THE CHAIRMAN: Mr. MacDonald, any questions?

MR. MacDONALD: No, thank you, sir.

Q DR. GOVIER: Dr. Hetherington, are you available



C. R. Hetherington

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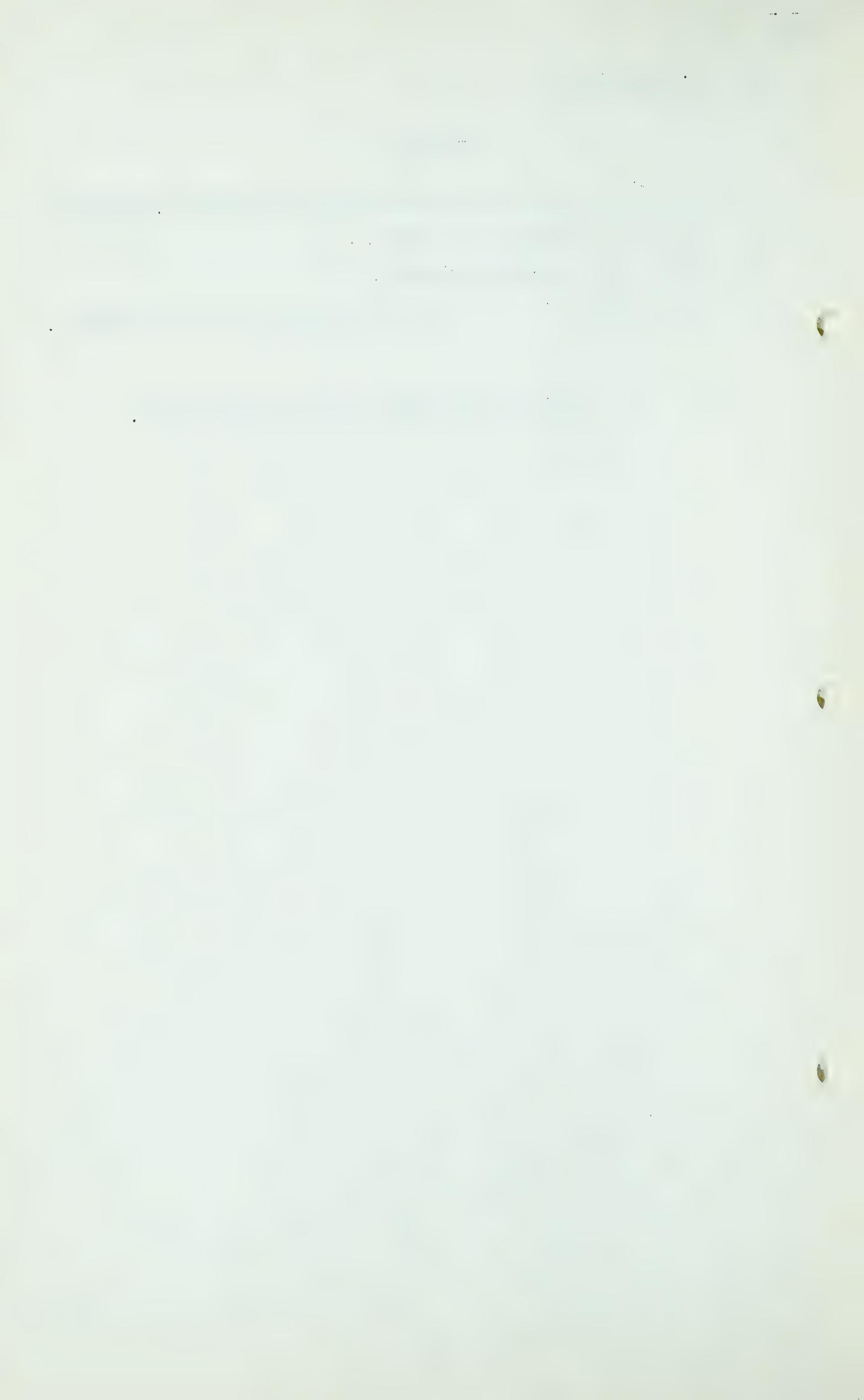
to give a lecture at the University of Alberta, on formula?

A I would consider it an honour.

Q Thank you, Dr. Hetherington.

THE CHAIRMAN: We will adjourn for a few minutes.

(Hearing resumed after short adjournment).



Frank McMahon,
Dir. Ex. by Mr. McDonald.

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FRANK McMAHON, having been duly sworn, examined by Mr. McDonald, testified as follows:

MR. McDONALD: Mr. Chairman, you recollect that I filed exhibit 54, a document with respect to the gas supply submitted by Westcoast Transmission Company Limited. I now have an additional document with respect to gas supply submitted by Westcoast Transmission Company Limited, which I would like to submit and have numbered.

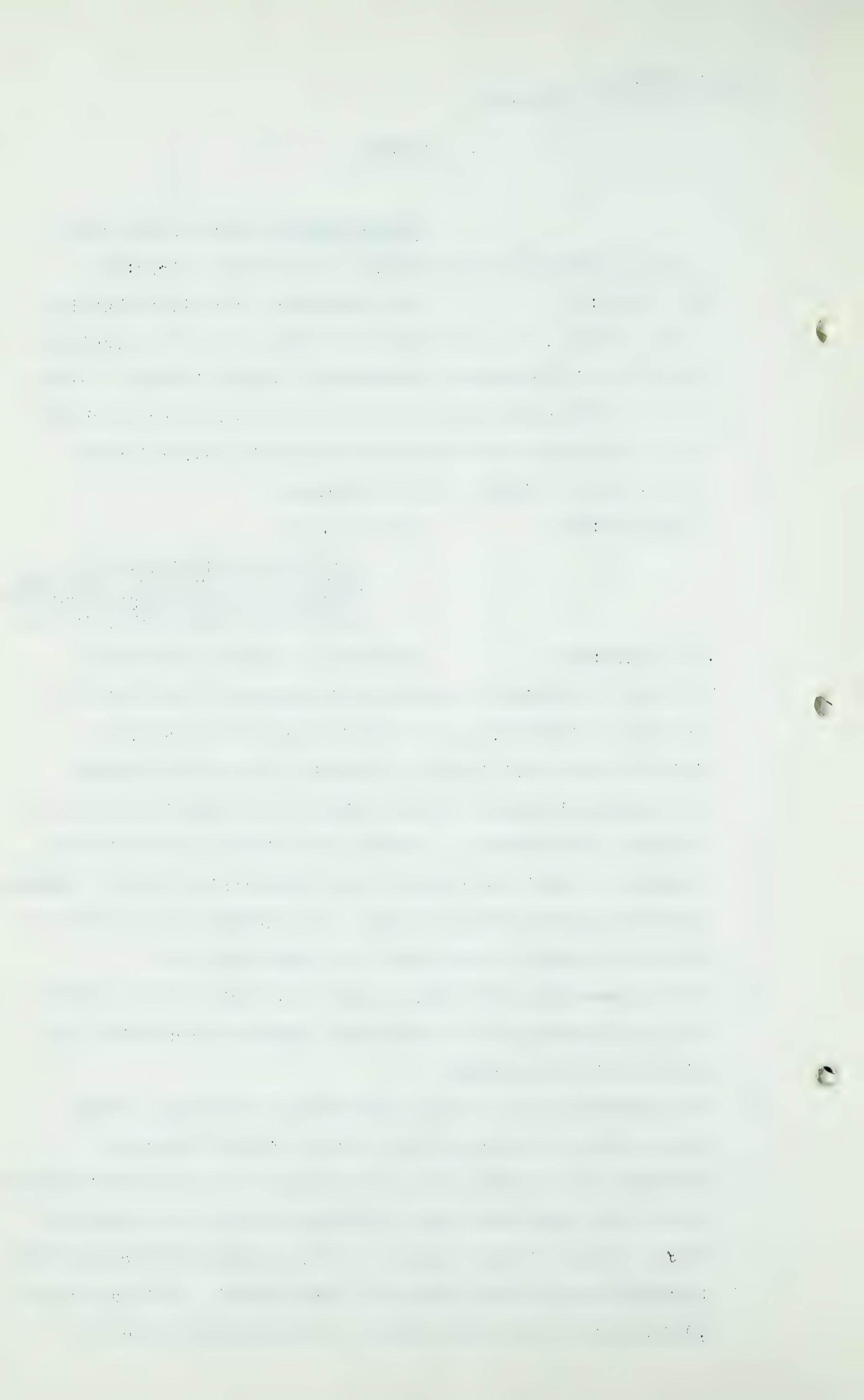
THE CHAIRMAN: Exhibit 122.

ADDITIONAL DOCUMENTS WITH
RESPECT TO GAS SUPPLY SUBMITTED
BY WESTCOAST TRANSMISSION COMPANY
LIMITED NOW MARKED EXHIBIT 122.

MR. McDONALD: Exhibit 54 contained documents relevant to Hudson's Bay Oil & Gas Company, the Union Oil Company of California, the Texaco Exploration Company, Pacific Petroleum Limited, Canadian Peace River Natural Gas Company Limited, Canada Atlantic Oil Company Limited and Imperial Oil Limited. Exhibit 122 contains document with respect to Shell Oil Company, the British American Oil Company and Phillips Petroleum Company. Mr. McMahon is prepared to deal with these or any questions regarding them.

Q In the meantime, Mr. McMahon, will you deal with the matter of the financing of the Westcoast Transmission proposal as submitted this morning?

A Our underwriters, or the people who are involved in this deal with us, including Wood, Gundy; Nesbit Thompson; Eastman Dillon of New York, have stated to me and re-confirmed to me that they were ready, willing and able to finance the equity stock of this company and they could also arrange with institutions for the 75% of the bond money. There is about \$23,000,000.00 that will have to be subscribed and even



Frank McMahon,
Dir. Ex. by Mr. McDonald.
H. R. Milner,
Dir. Ex. by Mr. Mahaffy.

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failing our underwriters, or the people who are associated with us doing this, we have a number of companies here and individuals who are willing to underwrite or subscribe for the full \$23,000,000.00 worth of equity shares or stock, or whatever is presented at that time by this project, without going to the public.

Q And that is based on the initial stage of 42 billion?

A That is correct.

Q As outlined in this submission?

A That is right.

MR. McDONALD: I draw the attention of the Board to the fact that quite a long time ago the financial interests associated with the Westcoast did present their evidence, and they were referred to just a moment ago by Mr. McMahon.

THE CHAIRMAN: Will you give the Board copies of that exhibit?

MR. McDONALD: I am sorry, sir.

Q Now, will you answer counsel?

A Yes.

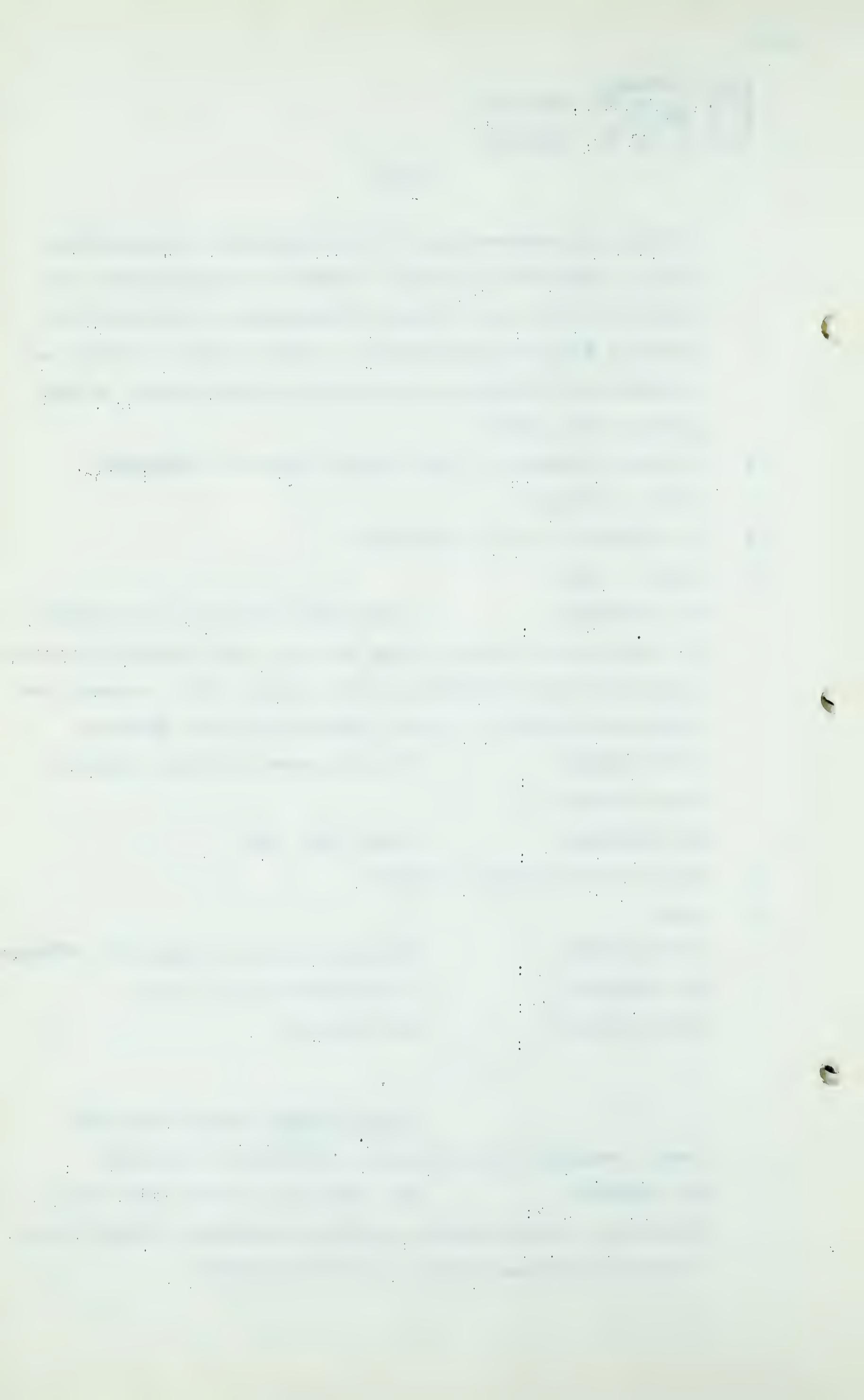
THE CHAIRMAN: That will be all, thanks, Mr. McMahon.

MR. McDONALD: I think that is all, sir.

THE CHAIRMAN: Mr. Mahaffy?

H. RAY MILNER, having been duly sworn, examined by Mr. Mahaffy, testified as follows:

MR. MAHAFFY: Mr. Chairman, we have filed with the Board, and the various parties interested, a brief which I think should now receive an exhibit number.



H. R. Milner,
Dir. Ex. by Mr.

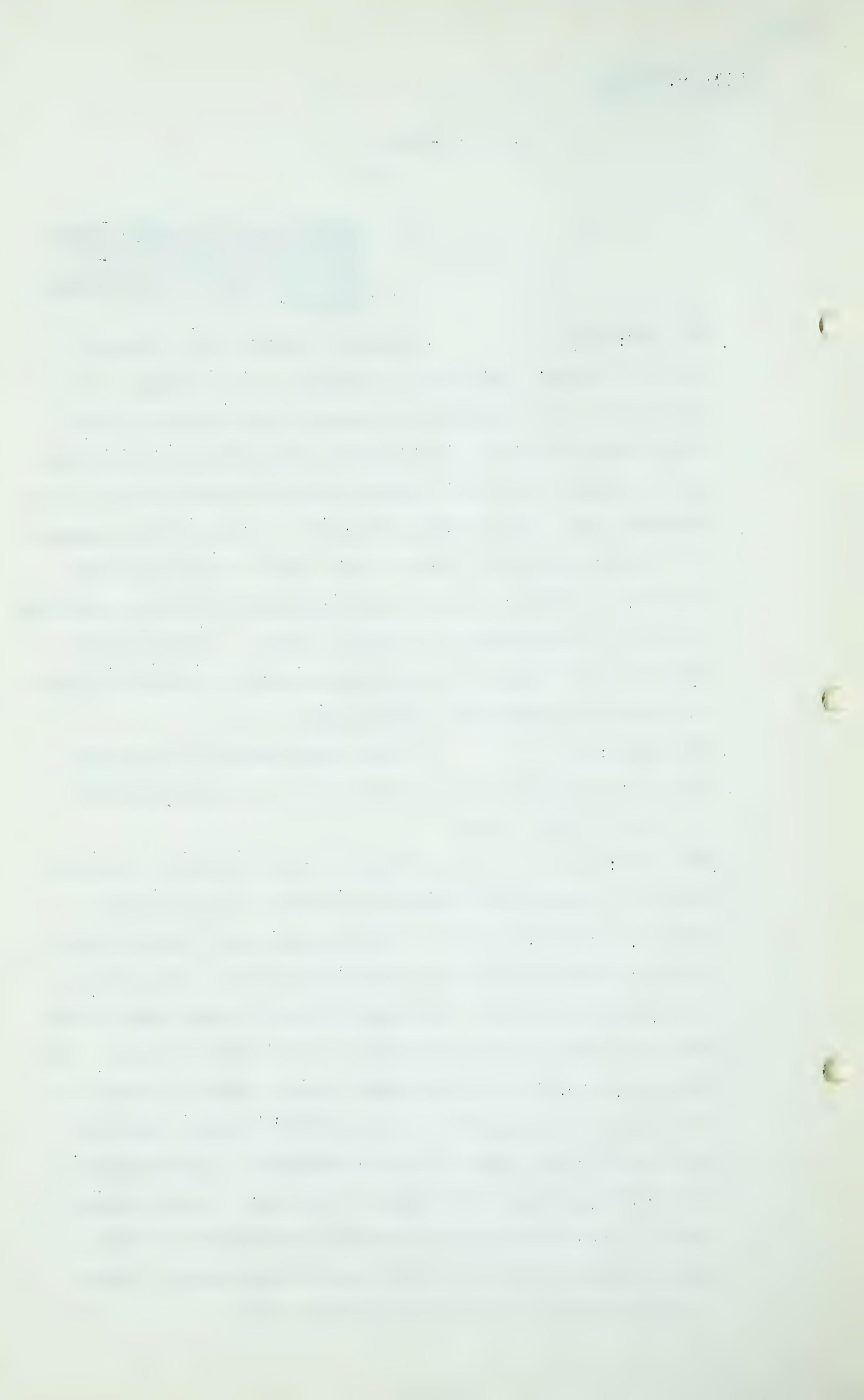
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SUBMISSION BY ALBERTA INTER-FIELD GAS LINES LIMITED TO PETROLEUM & NATURAL GAS CONSERVATION BOARD IS NOW MARKED EXHIBIT 123.

MR. MAHAFFY: And, Mr. Chairman, Mr. Milner is here to present this brief on behalf of the company. We realize you are pressing to complete your hearings, and I would like to leave it entirely to the members of the Board as to whether or not Mr. Milner should read the brief at the present time. Our feeling, frankly, is this, if the members of the Board have had time - and I realize you have been very busy - but if you have had the time to read it, we think it would be unnecessary to read it again. On the other hand, if you have not had that opportunity, I think it would be advisable to have Mr. Milner read it.

THE CHAIRMAN: I think the members of the Board have read it, but it is entirely up to you as to whether you want it read or not.

MR. MAHAFFY: If that is so, I think it would be perhaps a needless consumption of time to read it again. There are, however, three or four questions I would like to ask Mr. Milner in connection with the brief. But before I do that, there is one correction I wish to have made in the brief and the explanations which I would like to make. The correction, sir, is in the draft statute which is found in the back of the document and that draft statute commences immediately after page 12 and is Schedule I, and on page 2, Mr. Chairman, about the middle of the page, we have paragraph 5 of that proposal and through some mixup in the mimeographing of this document an error was made. Items A to H inclusive, should all be struck out.



H. Ray Milner;
Dir. Ex. by Mr. Mahaffy.

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MR. MAHAFFY:

And I would like to have inserted after sub-paragraph (2) these words:

"Here list items of information deemed necessary."

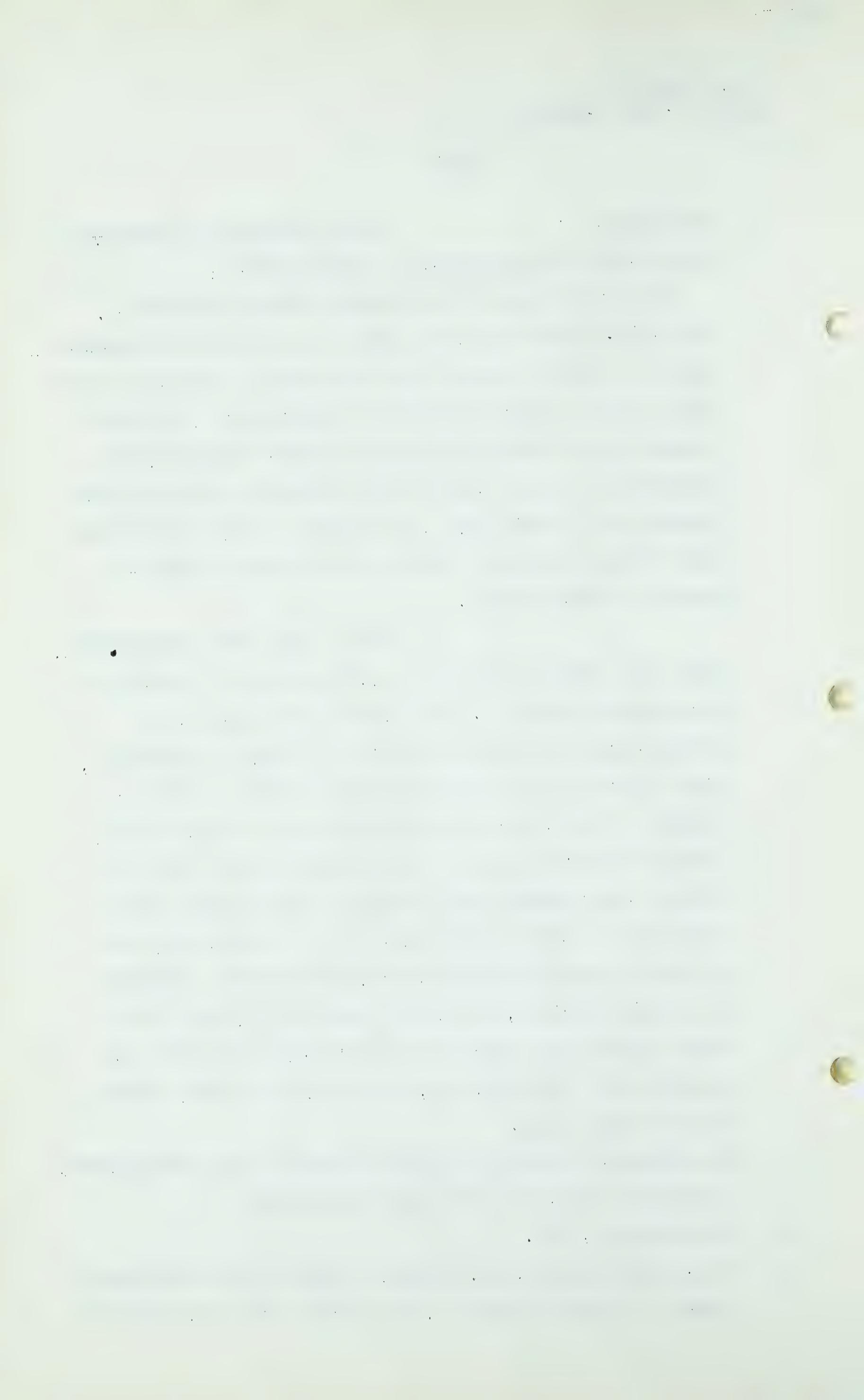
Now, Mr. Chairman, that may seem like an odd way of preparing a section in a statute but we do want to emphasize that this is only a proposed piece of legislation. We do not suggest that it would be the final word as approved by legislative counsel, should the Government decide to pass legislation of this type, it is merely a draft containing ideas that we thought in view of our argument might be helpful to this Board.

And in that same connection, sir, may I refer to Section 17, being the last section in the proposed statute. That is what you might call a general carry-all section worded in the way you find it, again because of the fact that this is merely a draft statute. Now, I can quite imagine that the Legislative Council in drafting an Act would object to that type of section, and perhaps would prefer to actually put into this statute various provisions of the Public Utilities Act and of the Conservation Act, which we have reference to in this section, but we felt again its being only a draft statute that Section 17 would convey the ideas we wished to put forward, and, as I say, that is the reason it is in that form.

Q Mr. Milner, I believe you gave evidence to this Board about a year ago and were qualified at that time?

A I believe so, yes.

Q Now, in this brief, Mr. Milner, on page 5, the first paragraph at the top of page 5, you refer to the fact that in



H. Ray Milner,
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the opinion of counsel the section is ultra vires and beyond the competence of the Provincial Legislature.

"The same is true of the entire statute (The Gas Resources Preservation Act)."

Now, Mr. Chairman, in connection with that paragraph we have obtained and we have circulated to counsel appearing in these proceedings an opinion which has been obtained from Professor Alex Smith, lecturer in constitutional law in the Law Department of the University of Alberta. That opinion is in three sections, one sections dealing with section 9, another section dealing generally with the legislative jurisdiction of the Dominion with respect to pipelines, and the third, an opinion with respect to the proposed statute which appears as Appendix I in the brief which is now filed as Exhibit 123. Do you wish, Mr. Chairman, that those be filed as exhibits? We are quite happy to submit them as such, if you think they should be.

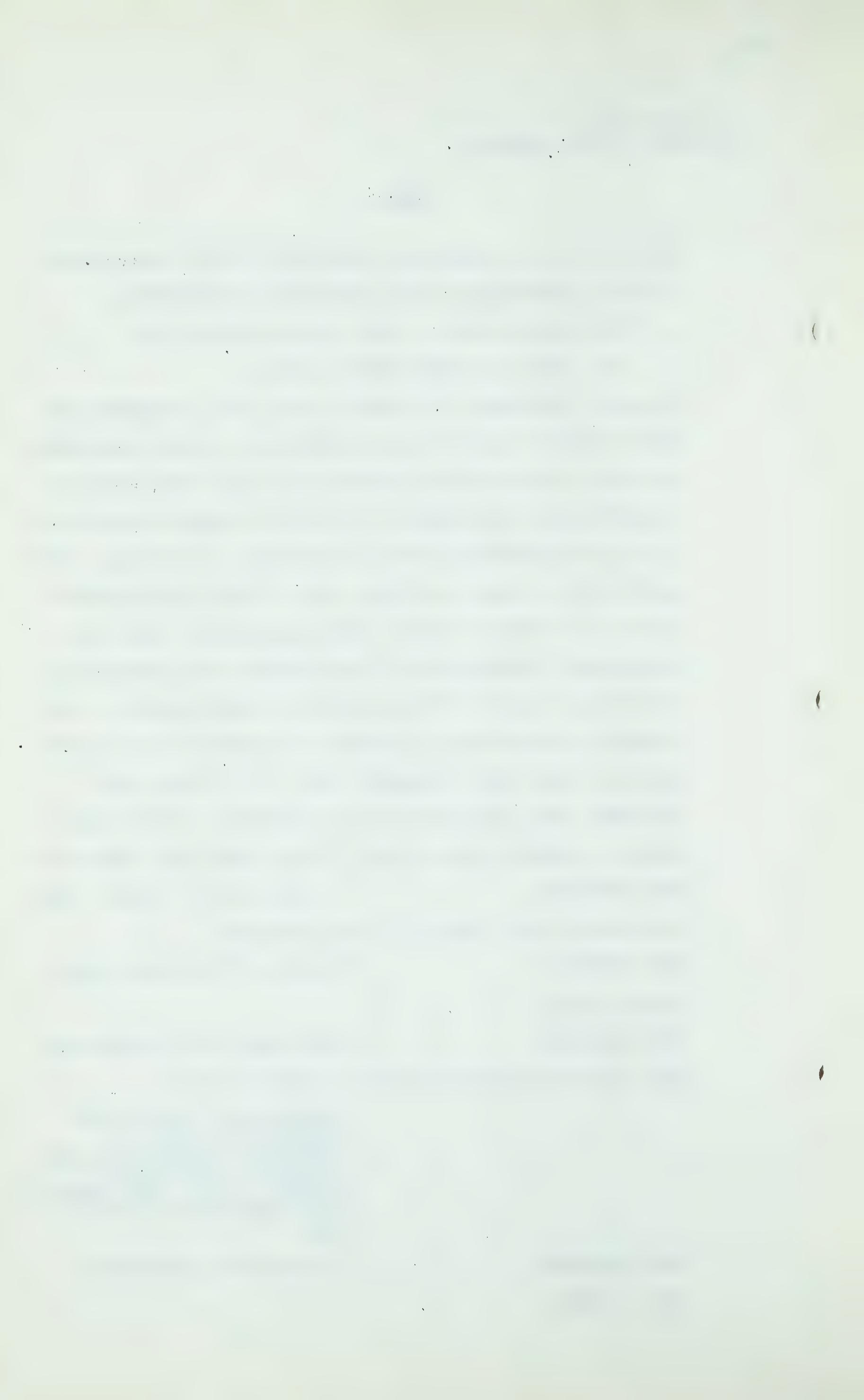
THE CHAIRMAN: I think we will accept them as exhibits. Mr. Smith will not be here?

MR. MAHAFFY: No, sir. We did not plan to call him.

THE CHAIRMAN: The first one dealing with the validity of Section 9 will be Exhibit 124.

SUBMISSION, "VALIDITY OF SECTION 9 OF THE GAS RESOURCES PRESERVATION ACT, CHAPTER 2, STATUTES OF ALBERTA, 1949, (2nd SESSION)" PUT IN AND MARKED EXHIBIT 124.

THE CHAIRMAN: On pipeline legislation will be 125.



H. Ray Milner,
Dir. Ex. by Mr. Mahaffy.

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SUBMISSION DEALING WITH PIPE-LINE LEGISLATION PUT IN AND MARKED EXHIBIT 125.

THE CHAIRMAN: And the one dealing with the proposed Act will be 126.

SUBMISSION, "THE VALIDITY OF THE PROPOSED ACT, THE GAS TRANSMISSION SYSTEM ACT", PUT IN AND MARKED EXHIBIT 126.

MR. MAHFFY: Mr. Chairman, I would like to point out that although Exhibit 124 refers in the heading to "Validity of Section 9", that in the last paragraph of that opinion Professor Smith expresses the view that the entire Act, that is, the Preservation Act, is ultra vires.

Q Mr. Milner, I wonder if you would have a look at page 12 of Exhibit 123. In fact, we might start at the bottom of page 11. That paragraph commences this way:

"It is suggested that any company to which a license is granted should have substantially the following characteristics, - "

and then on page 12(a):

"Its memorandum of association should provide that no person shall own or control either directly or indirectly, or through a subsidiary or subsidiaries, more than ten (10) per cent of its voting shares."

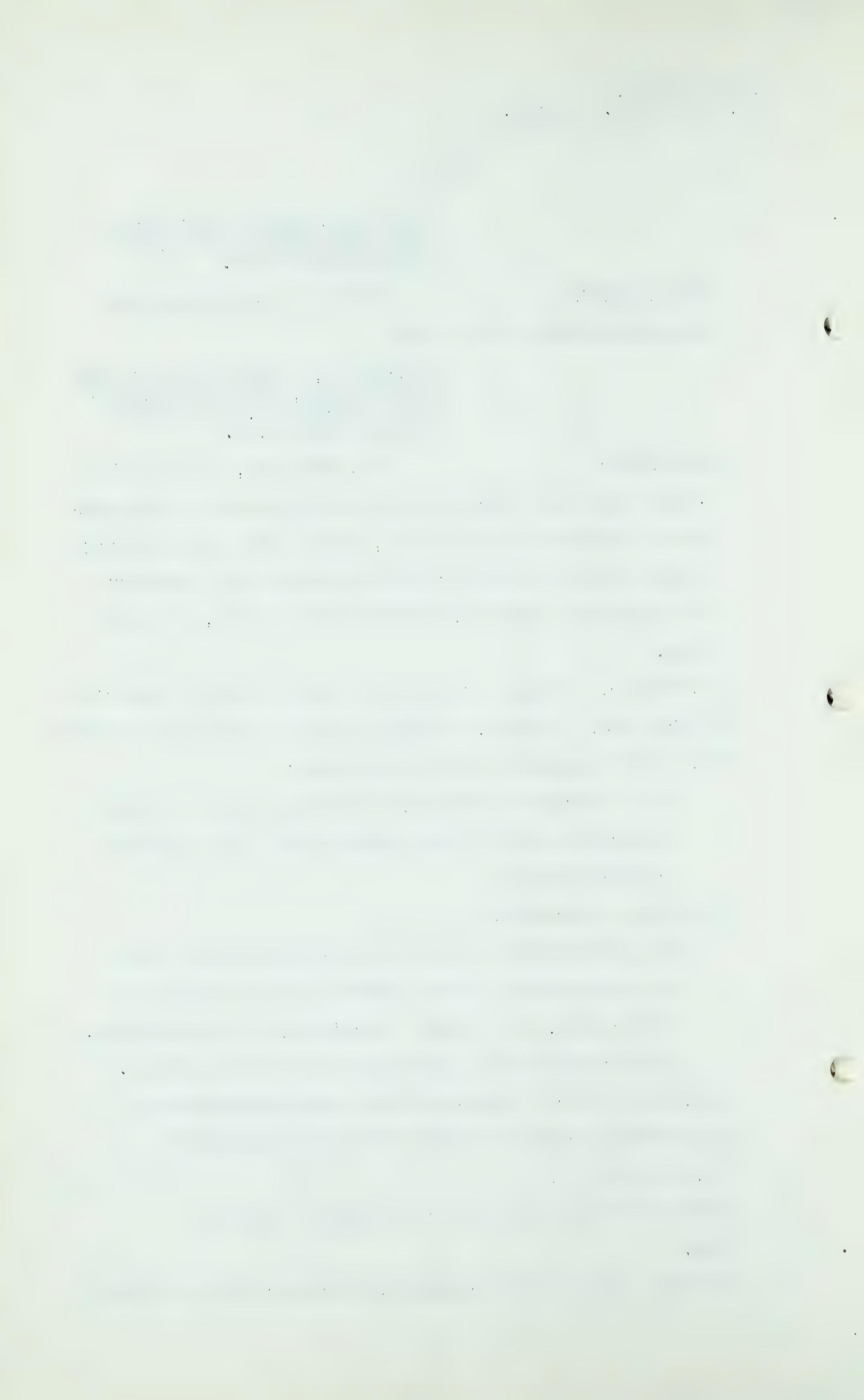
Now, that Alberta Inter-Field Gas Lines memorandum of association presently comply with that suggestion?

A No, it does not.

Q Would you propose that it be amended to comply?

A Yes.

Q And what plan has the company with respect to the dispos-



H. Ray Milner,
Dir. Ex. by Mr. Mahaffy.
Cr. Ex. by Mr. Nolan.

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ition of its shares, Mr. Milner?

A Well, our view is that if this scheme goes ahead there should be a distribution of stock, voting and otherwise, so that in the first place the producers should have representation, the distributing organizations in the Province, the exporters and the public, and the 10 per cent limitation is, of course, to make certain that that could easily be done. Now, the 10 per cent may or may not be too high.

Q So that the intention is to make shares in the company available to utility companies, exporters, producers and the general public?

A Yes.

Q Who are the present directors of the company, Mr. Milner?

A The present directors are Roy Marler, E.R. McFarland, R.M. Montague, Angus McKinnon, John Proctor, George Wood of Raymond, Fred Stapells and myself.

Q Yes. Would you answer the other counsel, Mr. Milner, please.

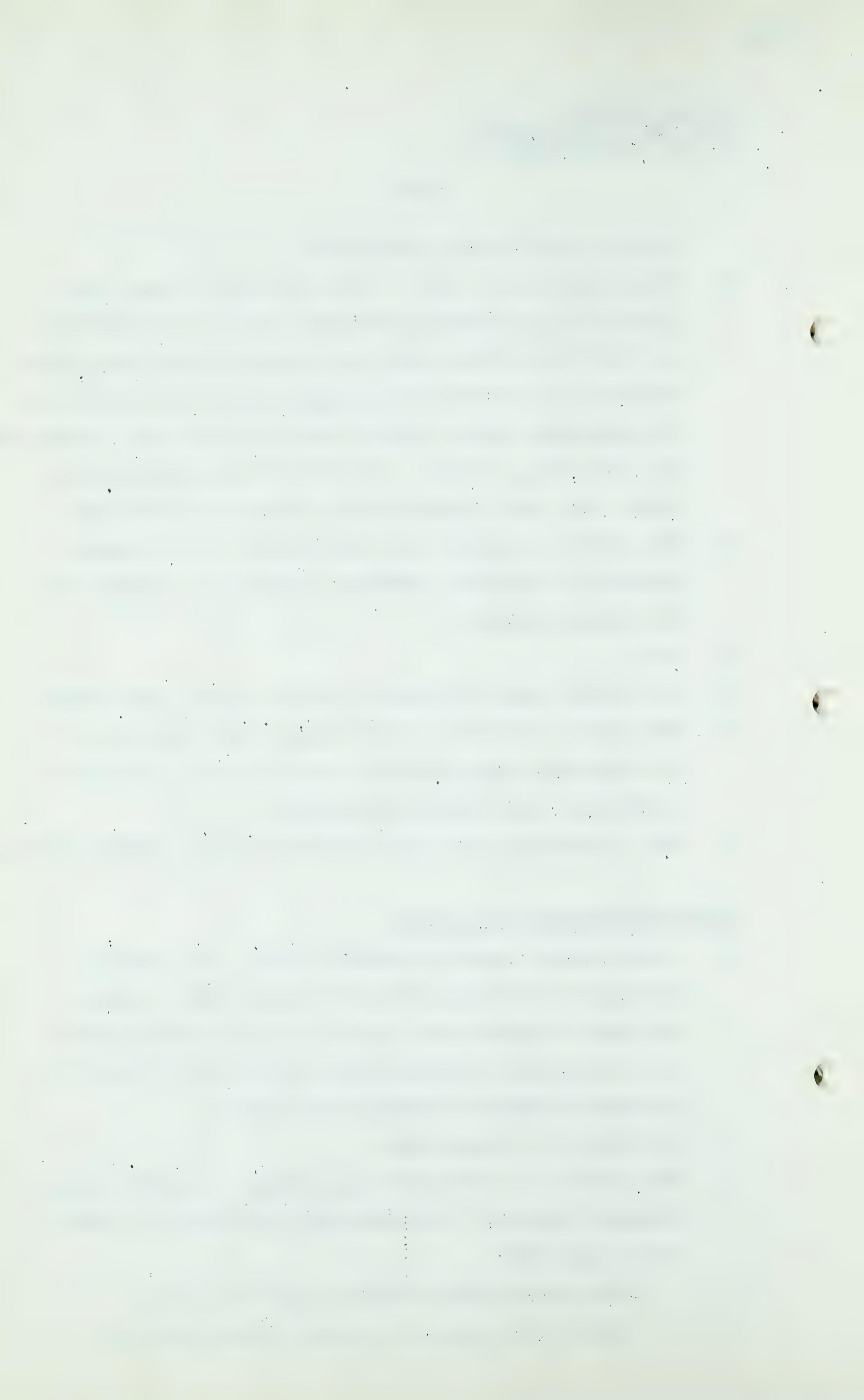
CROSS-EXAMINATION BY MR. NOLAN:

Q A few things I wanted to ask Mr. Milner. Mr. Milner, turning to your brief, which is Exhibit 123, I think we may begin by saying that you and I are in common accord that there can be no export east or west unless there be an American market to support that export?

A We seem to be in agreement.

Q Well, that is a good beginning, anyway. And, Mr. Milner, turning to page 2, I note that you say about the middle of the page that:

"If Alberta permits export of gas to a point south of the line, it does not follow that the



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"full benefits accrue to Canadians."

That would apply equally, of course, to the Western Pipe Line project as to the project of the Northwest Natural Gas Company?

A Yes, it would apply to any pipeline which is not substantially in Canada.

Q Do you hold the view that export is a bad thing for Canada, generally speaking?

A No, I have never held that view.

Q Why do you limit your criticism to the export of natural gas?

A Why do I want?

Q Why do you say that the export of natural gas will not produce the full benefit to Canadians?

A I say that in relation to the position in the United States where all the pipelines are through the United States. Now, on the other hand, any pipeline in Canada, unless it goes completely through Canada, must be built substantially in the United States or to some substantial degree. Now, it is quite obvious that that is a real distinction.

Q It would apply equally to an oil pipeline, Mr. Milner?

A Yes.

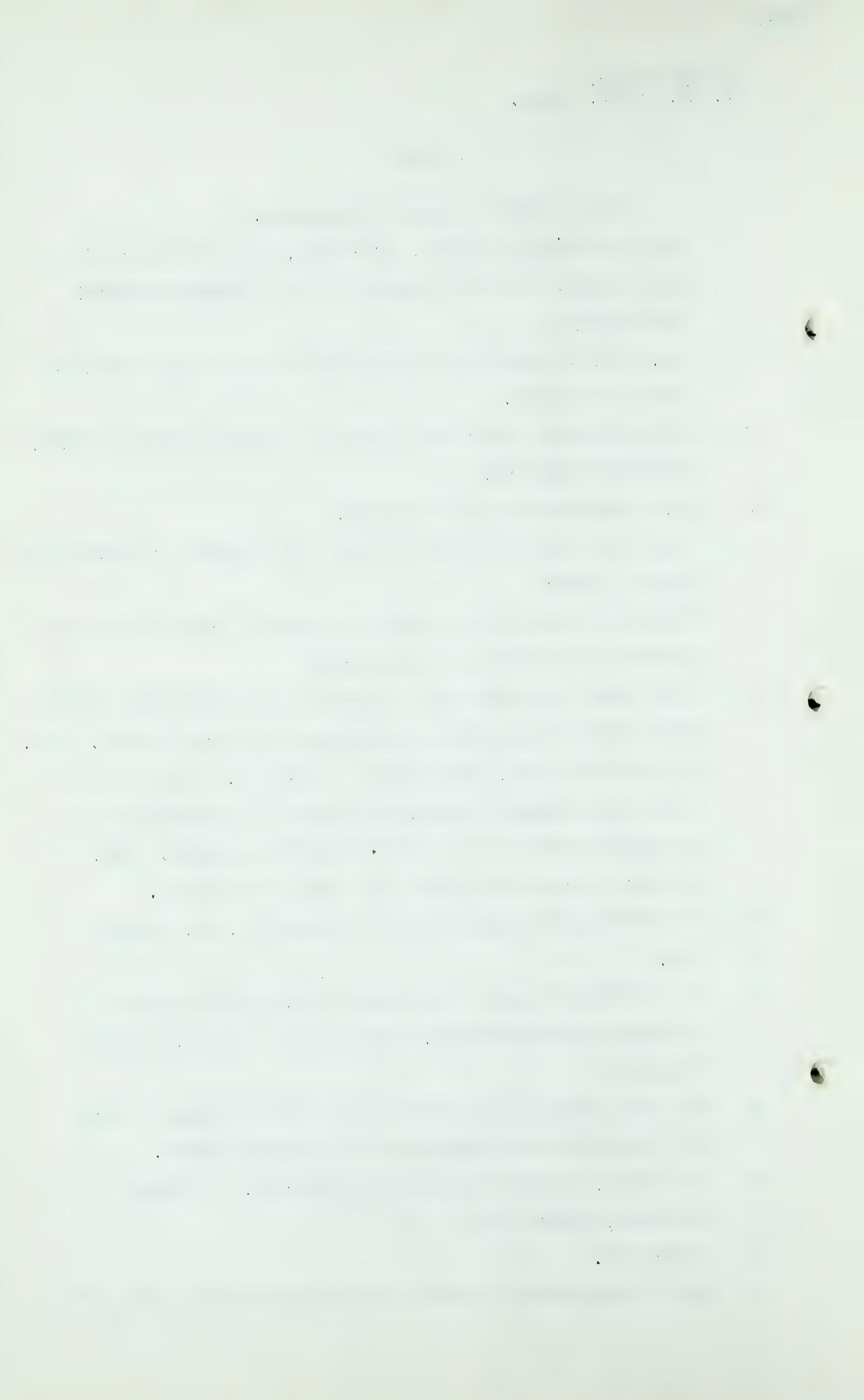
Q Do you think it was a bad thing for Alberta to have an oil pipeline constructed, known as the Inter-Provincial Pipeline?

A No, but I think it would be a much better thing to have the Trans-Mountain Pipeline built through Canada.

Q Of course, you are interested, primarily, in the gas business, aren't you?

A Primarily.

Q And to some extent in the oil business because you propose



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that certain gas shall be taken from the oil, as is mentioned later in your submission. Now, I wanted to ask you something about this pooling arrangement that you refer to. But before I do so, perhaps I should go through this page by page, and I have not very much to ask you.

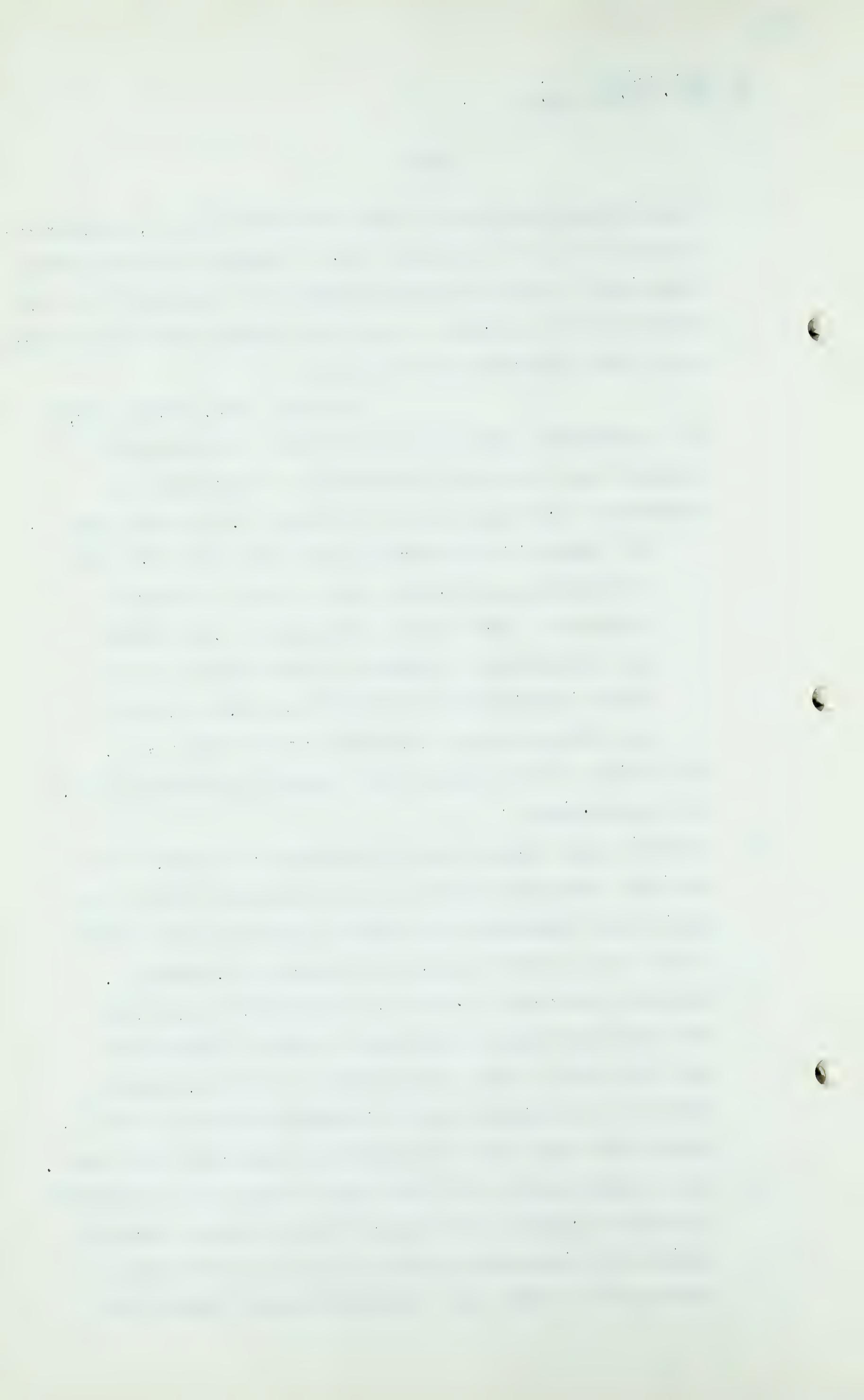
On page 3, Mr. Milner, there is a statement in paragraph B in which you develop the argument that industrial development if important to Albertans, the cheap fuel is a factor, and then you say:

"The impact on the Province of a high price for all industrial gas, whether used as fuel or chemical conversion, must not be overlooked. With cheap and abundant gas, important industries have established themselves in the Province, while others are giving serious consideration to doing so."

You are not of the opinion that industry follows fuel, are you, Mr. Milner?

A Certain types. Most types of industry do not, but I am very much impressed with the fact that since 1940 80 per cent of all industry in the United States has been built in the four gas States, such as Arkansas, Oklahoma, Louisiana and Texas. Also, I am impressed by the fact that about $4\frac{1}{2}$ times as much gas is used in industry on the other side of the line as there is here, whereas in Canada the percentage used for domestic purposes is far greater than that used for industrial purposes, even yet.

Q Are you impressed by the fact that if export were permitted it would be possible at Pincher Creek to derive from the products of those wells some 19 million dollars worth of substances of which only 6 million dollars comprise the



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value of the natural gas?

A If those are the figures, I will accept them.

Q They are in evidence. And that it is contemplated that a plant costing many millions of dollars would be constructed at Pincher Creek. Now, Mr. Milner, that can not happen unless we have export, can it?

A No. Export under proper control for the protection of the Alberta market, not only to its market but the future market, should not be prohibited. My position has always been, Mr. Nolan, that when there is enough gas in the Province to take care of the present and the future there can be no real objection to export.

Q Then you are not an opponent of export?

A Not export per se, no.

Q Because, after all, your companies are interested in the Western Pipeline and they are seeking export.

A No, my companies are not.

Q Well, the grand-daddy of them is.

A Yes, the distant grand-daddy.

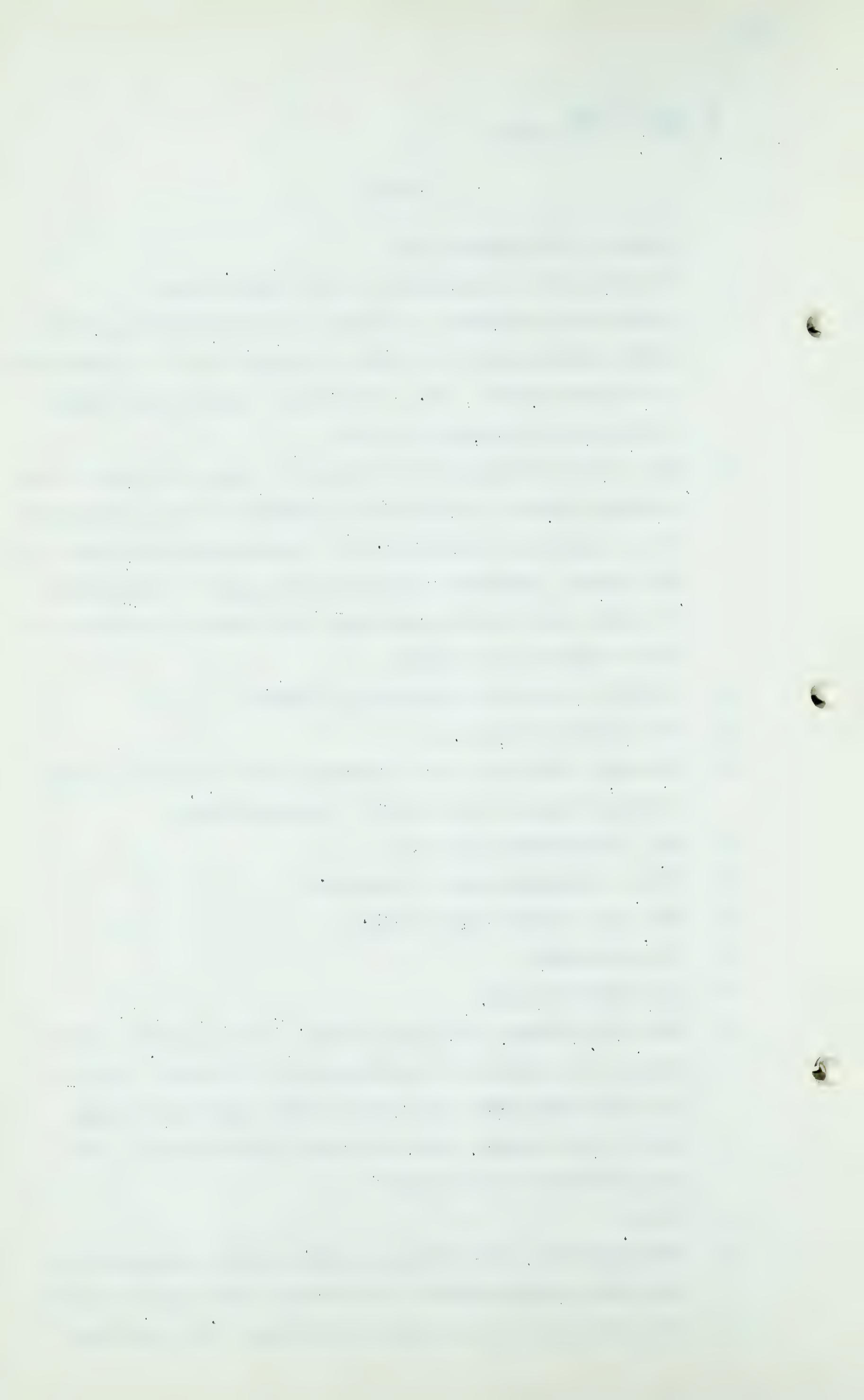
Q Once removed?

A Once removed, yes.

Q Now, Mr. Milner, would you please, for my benefit, and I am sure it would be of assistance to the Board, tell me a little more about your idea of what pooling arrangements can be made. That is at the top of page 6. Do you see where I am looking?

A Yes.

Q And these are included among what you call the merits of the Inter-Field proposal, and you say that one of them is the pooling of the gas producing fields. Now, tell me,



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Mr. Milner, how do you propose this pooling should be brought about?

A Well, the pooling will not take place immediately any more than the unitization of the fields in this Province took place immediately, but there was, if you are looking for precedent, there is the precedent of Turner Valley followed by Kinsella, which, perhaps, was the first unitization. Now, my idea of this pooling is that if there is to be export it is not fair or just that one or more fields should have the market if other fields are available and can furnish their share of the gas.

Q And provided always that it is economically feasible to connect them up?

A Oh, of course.

Q Now, when you speak of Turner Valley, you really are speaking of unitization rather than pooling, aren't you?

A In principle, they are the same.

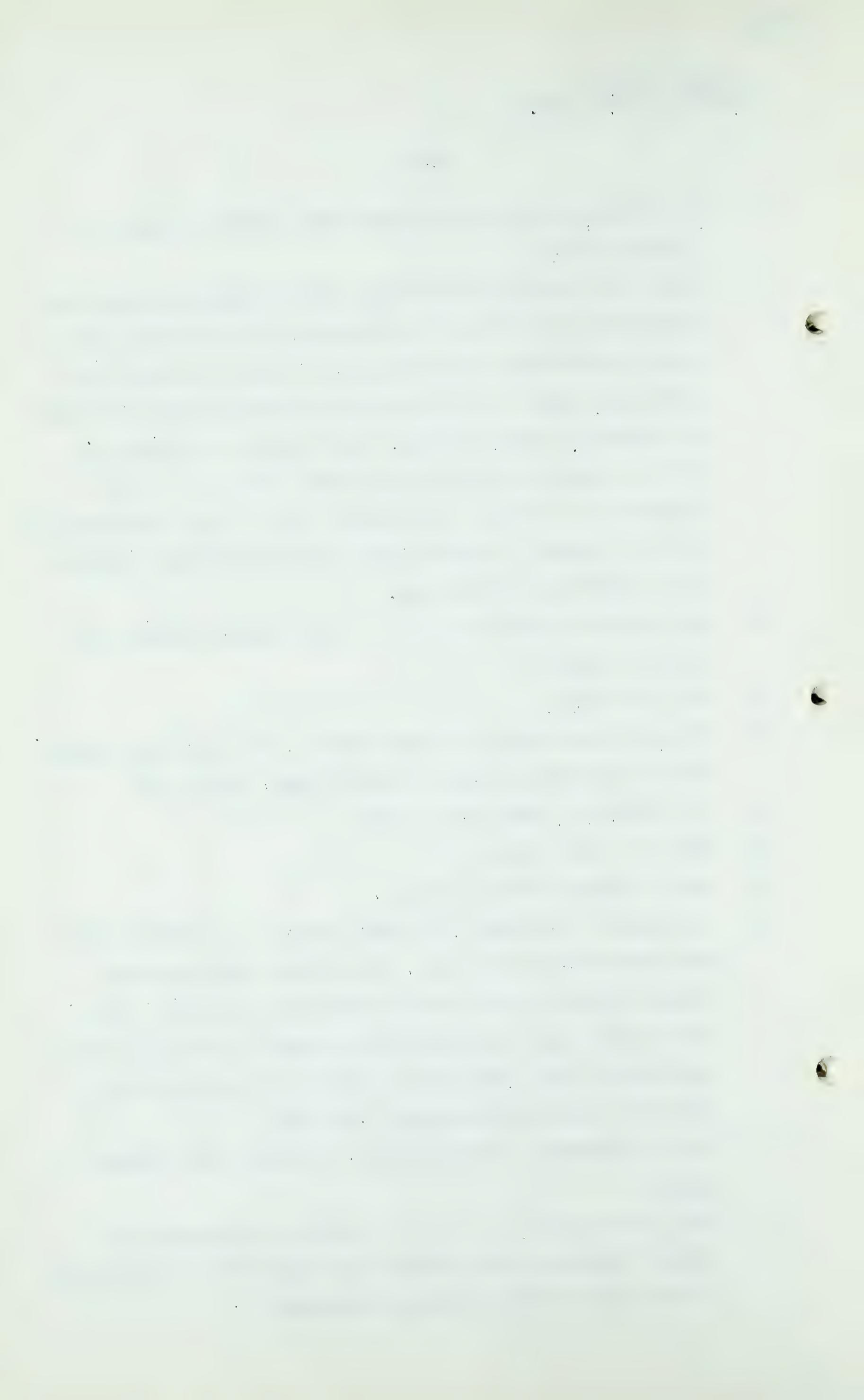
Q Well, the same except --

A One is big and one is little.

Q In respect of pooling, you have fields in very many different parts of the Province. When you are talking about Turner Valley you are talking about one locality. Now, these people who have gas from hundreds of miles away from an existing line, they are not going to be permitted to join this pooling arrangement, are they?

A No, not hundreds of miles away. Everything is a matter of degree.

Q Well, let me say if it is not economically feasible to connect them up at the present time then they are not going to form part of this pooling arrangement.



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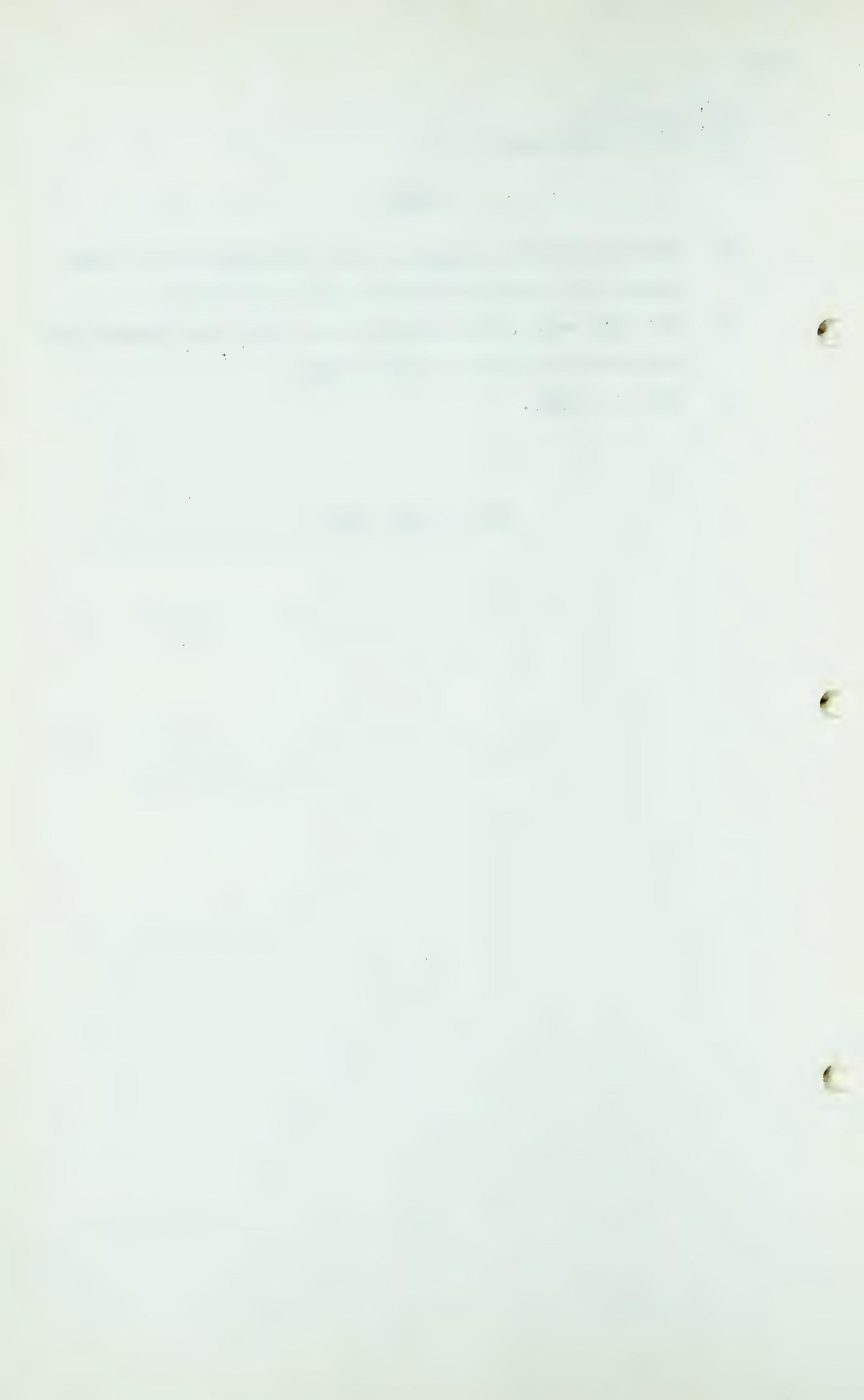
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A Anything of this character will necessarily be of slow growth, you can not carry it out in a minute.

Q In other words, Mr. Milner, to use your own language, it will have to be done step by step?

A That is right.

(Go to page 3360)



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Q As you have done with your own gathering system for your own local distributing company. As the need arises, and as it is economically feasible, other pools will be joined up to the main distribution system?

A As you say, as it is economically feasible, I would agree with you.

Q You would agree with me?

A Yes.

Q Now, I notice on page 5 that you have some discussion about Section 9 of The Gas Resources Preservation Act, and you make mention of the fact that in the opinion of your counsel, and we have his opinion before us, the same is ultra vires. Now, you make this statement that,-

"It is still very doubtful if Provincial control can be retained where the gathering system in the Province is controlled by a subsidiary of the company which operates the export transmission line."

Now, Mr. Milner, you have a company, or distributing companies in Alberta, and that company or companies are under the Board of Public Utility Commissioners. It is a public utility?

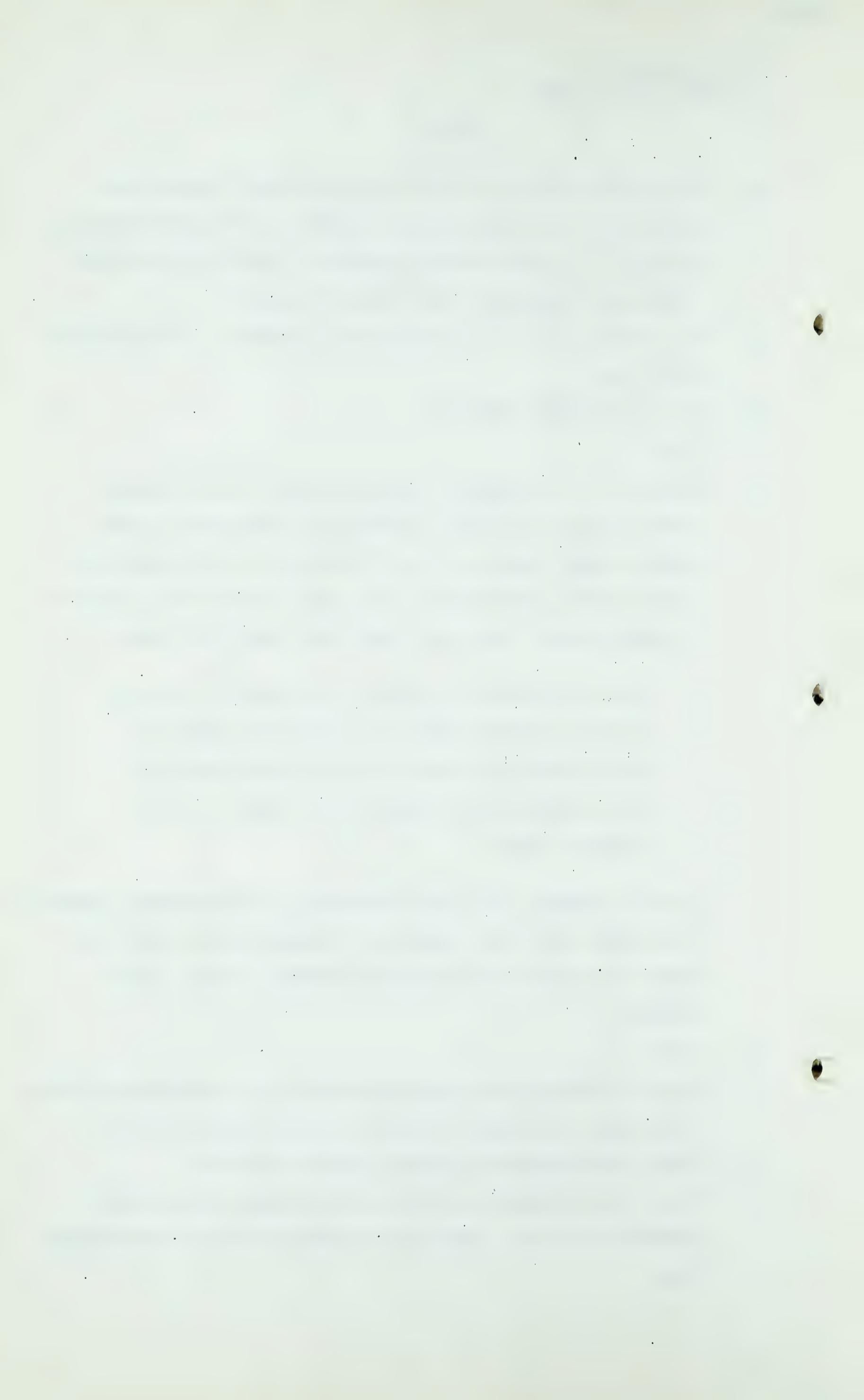
A Yes.

Q And the company which you advocate to be incorporated would come under the Board of Public Utility Commissioners?

A Under the appropriate Board, whatever that is.

Q Under the appropriate Board, as you say in your brief, whether it be the Conservation Board or some other Board?

A Yes.



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Q Now, what difference does it make whether this particular company that gathers is a subsidiary, or is controlled by a subsidiary of the company which operates the export transmission line, isn't the control here?

A I would think not.

Q Why not?

A I would refer you to the opinion of Professor Smith.

Q I would like to refer you to The Oil and Gas Conservation Act, and I would like to ask you if you have taken into consideration the sections of that statute when you say that there is not in this Province at this time adequate control?

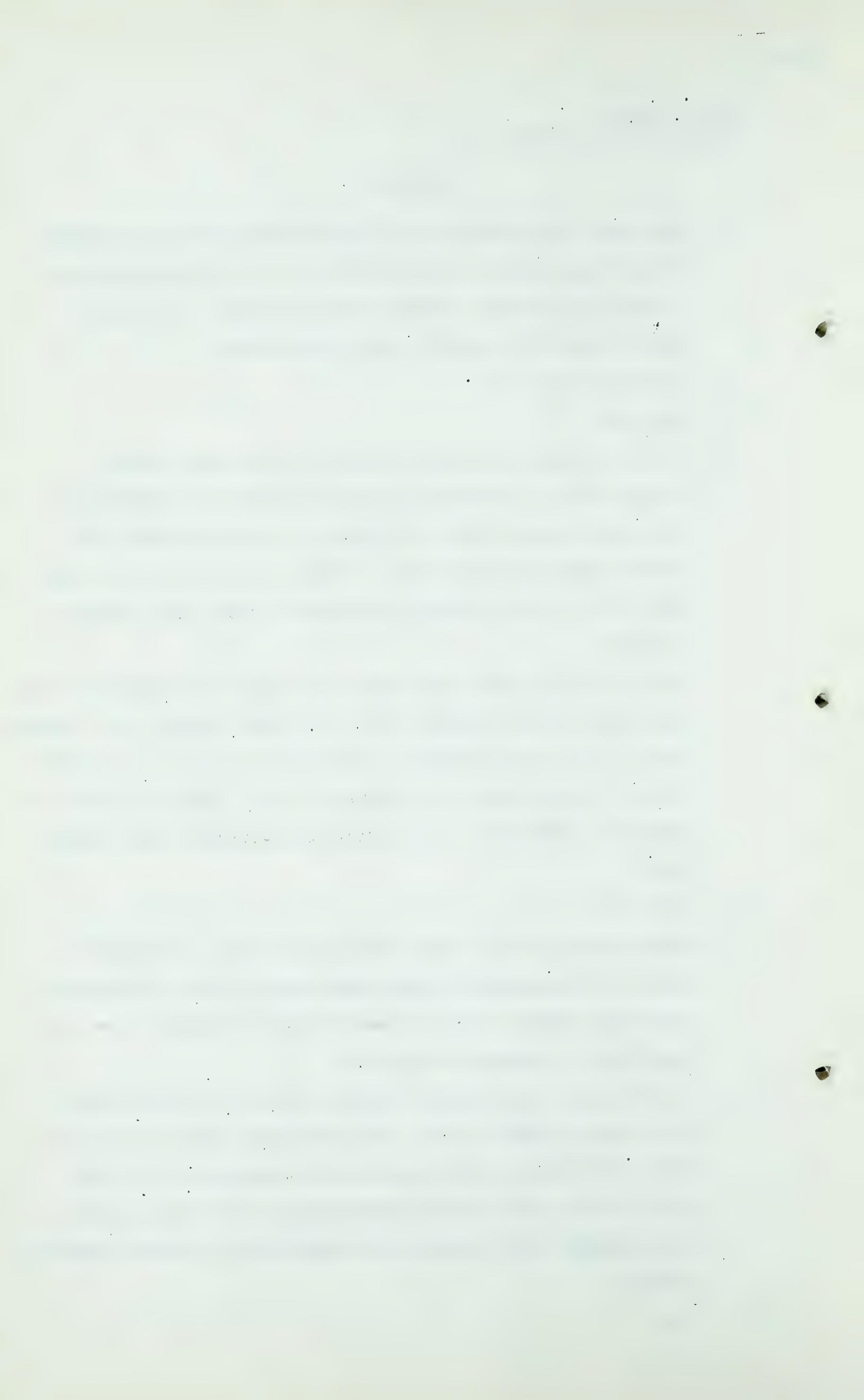
A Well, I am not here qualified as an expert on Constitutional Law, but I would venture this, Mr. Nolan, purely as a layman, that if you should refer to Section 5 of the Act, I think it is, you will see the intention of it, that the object in making it effective was conservation strictly, and nothing else.

Q Quite so?

A Now whether that Act will stand up in toto, or whether some of the sections are good and some are bad, or whether the whole thing is bad, is something about which I am not qualified to express an opinion.

Q I think you are being a little modest, Mr. Milner, but still we will pass it by. In any event, you did have in mind, Mr. Milner, such a section as sections 40, 43, 45 and 47 of the Oil and Gas Conservation Act when you make the statement that there is not now here in Alberta adequate control?

A Yes.



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Q But there is control over price, Mr. Milner?

A I say again that I refer you to Section 5 of the Act. I do not know the meaning of it, but it certainly seems to me to limit the whole Act.

Q Well, you have no doubt in your mind that the price at which you sell to the consumer is controlled by the Board of Public Utility Commissioners?

A None whatever.

Q You have, equally, no doubt that the price that is paid to the producer in this Province is controlled?

A I would not express an opinion on that, Mr. Nolan, but I would think it is very doubtful.

MR. C. E. SMITH: Having regard to the matter of the record, Mr. Chairman, Mr. Milner is referring to Section 3, not Section 5.

A Section 3, is it?

Q Yes.

A I beg your pardon.

Q MR.NOLAN: Is there any doubt about the fact that the producers' price is subject to Government authority?

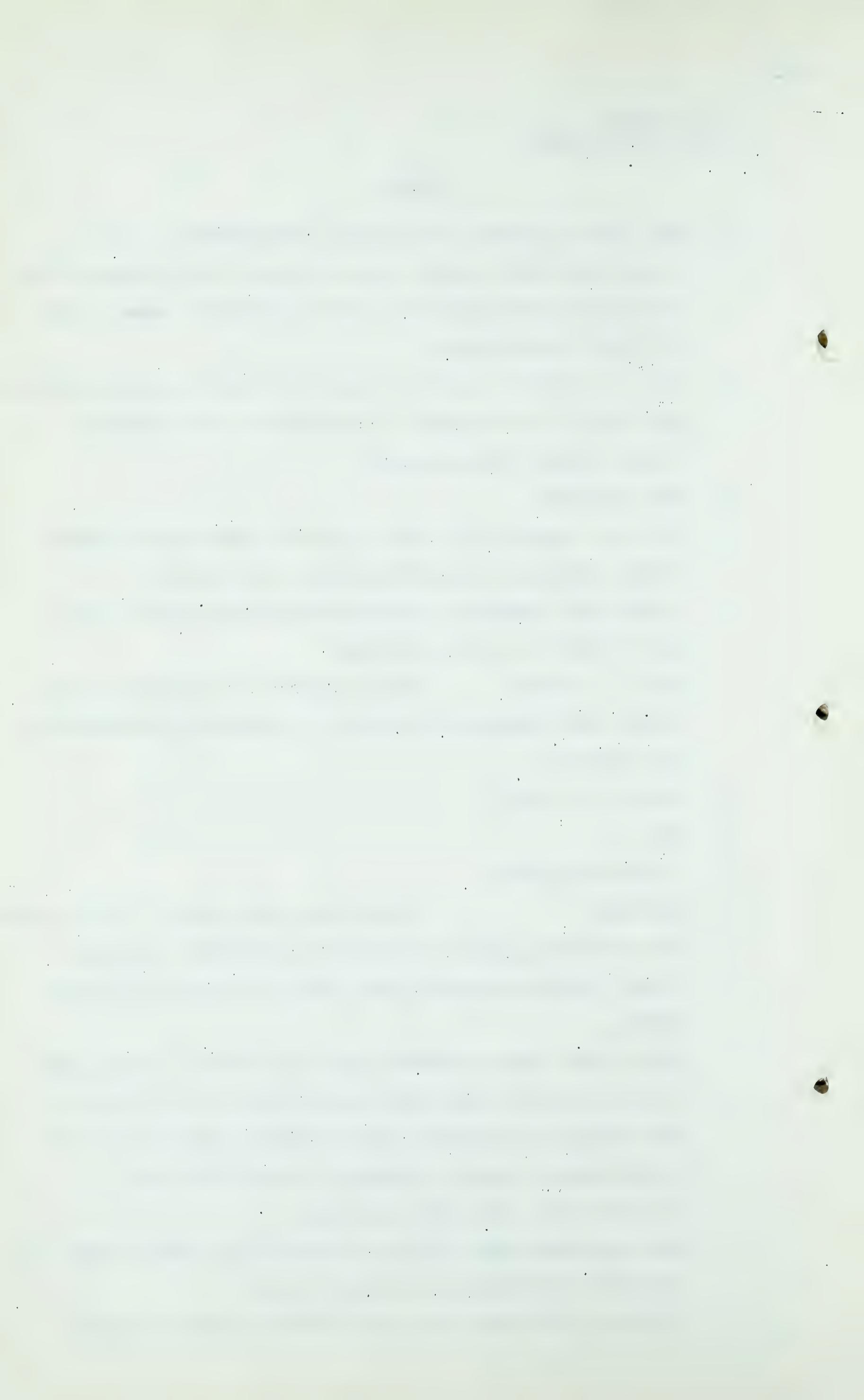
A I think there is a grave doubt about it, except in Turner Valley.

Q And was that what Mr. Brownie was referring to when he gave evidence here the other day and when he told us that the field regulation of prices was statutory authority and is at the present time an actuality in this Province?

A I do not know, I did not hear him.

Q Well, you know what prices are controlled so far as the producers are concerned, what are they?

A I know the producer has a price fixed in Turner Valley.



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Q Yes?

A I do not know of any price being fixed at the well head elsewhere in the Province.

Q But you do know that there is legislative power, so to speak, in the statutes as they exist?

A Are they of general application, or are they of particular application?

Q Well, are you asking me, because you must not, Mr. Milner, you know?

A I am speaking to counsel learned in the law, and I thought you wanted to elucidate.

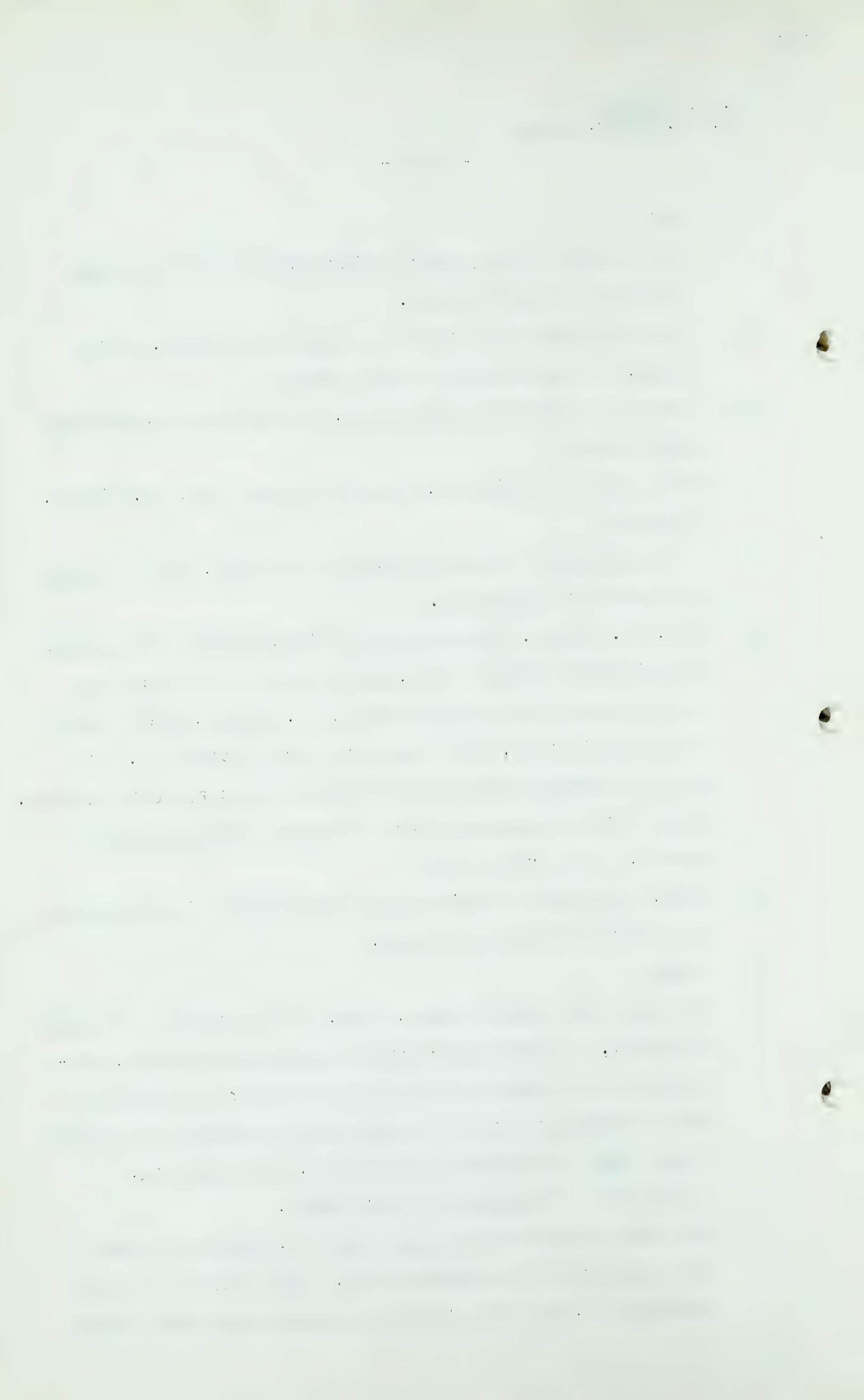
Q Now, Mr. Milner, my engineering friends always tell me what bad witnesses lawyers made, and I want you to help me to show that they are wrong. Really, Mr. Milner, what I want to get at is this, and I am quite serious about it, you say if a company is incorporated under this proposed statute, there will be a greater share of control than presently exists. I do not see why?

A Well, this brief is written for the purpose of endeavouring to show that that is the case.

Q I know.

A For this very simple reason, that, as I am told by competent authority, a subsidiary company operating in Alberta, subsidiary to an export system, would be under the control of the Transport Board of Canada, and not under the control of any Board of authority in Alberta, or of Alberta, at any rate as legislation now stands.

Q Now, when you were here a year ago, Mr. Milner, you said that you were of the opinion then, and I think you still entertain it, that the gathering system would come within



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the orbit and under the jurisdiction of the Board of Transport Commissioners, unless it is your gathering system?

A No, no.

Q What difference is there between your gathering system and anybody else's gathering system, Mr. Milner?

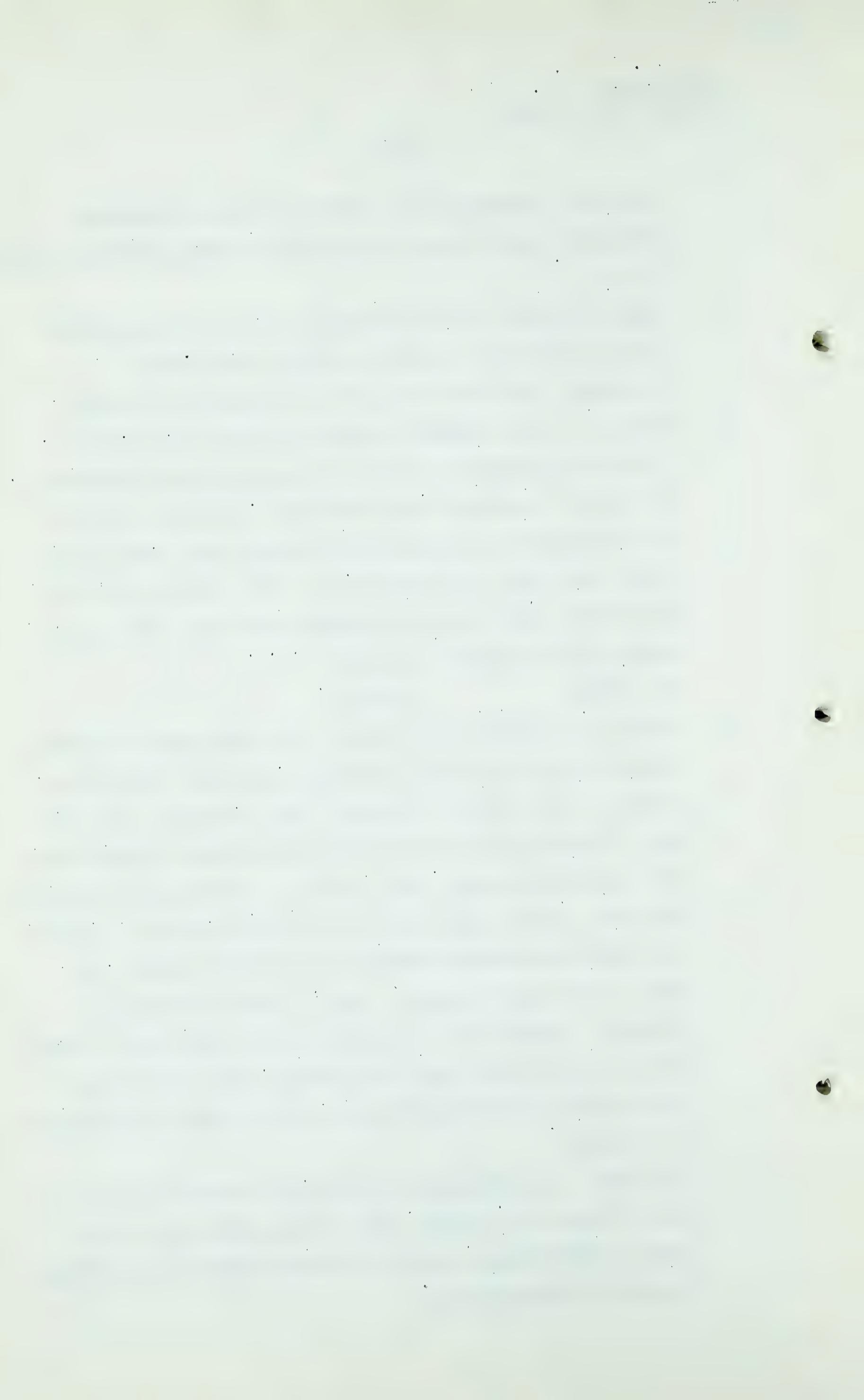
It gathers gas for a main line transmission system?

A Well, as I have already repeatedly stated, Mr. Nolan, I am not qualified to speak on constitutional questions, but when I, perhaps, was qualified, I acted as counsel in a case known as the Brazeau Railway case, and if you will read that case again, and I know you have read it many times, and you will remember that that little spur owned by the Brazeau Collieries. . .

MR. STEER: Luscar.

A Luscar, not Brazeau Collieries, that was declared to come under the Railway Board of Canada, which was the predecessor to the present Transport Board, because that spur was an integral part of the Canadian National system, and was operated as such. Now, I can see no difference between that case, and I only refer to that case, and the case of the gathering system attached to an export system, and owned by the same system. Now, I refer to that case because I remember it in the days of my youth when I acted as counsel for the Luscar Collieries, and I am stating you the facts with regard to it, not the legal conclusions to be drawn.

Q All right. I understand the case, and we understand the reason behind it, namely, that the spur was part of the general undertaking, and so it became subject to the Board Transport Commissioners.



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A And your gathering system would now be in the same position.

Q And so would yours, I suggest that, Mr. Milner?

A Not if it separately owned and independently operated.

Q Can you tell me why in the world separate ownership and independent operation makes any difference under the law as to the jurisdiction? Surely it is doing the same thing as was done at Luscar, it is a feeder to the main line?

A I must refer you to the opinion of Professor Smith, who draws a distinction there, as I read it, and I can do nothing about it.

Q I will just leave it at this: You agree with Professor Smith, do you, Mr. Milner?

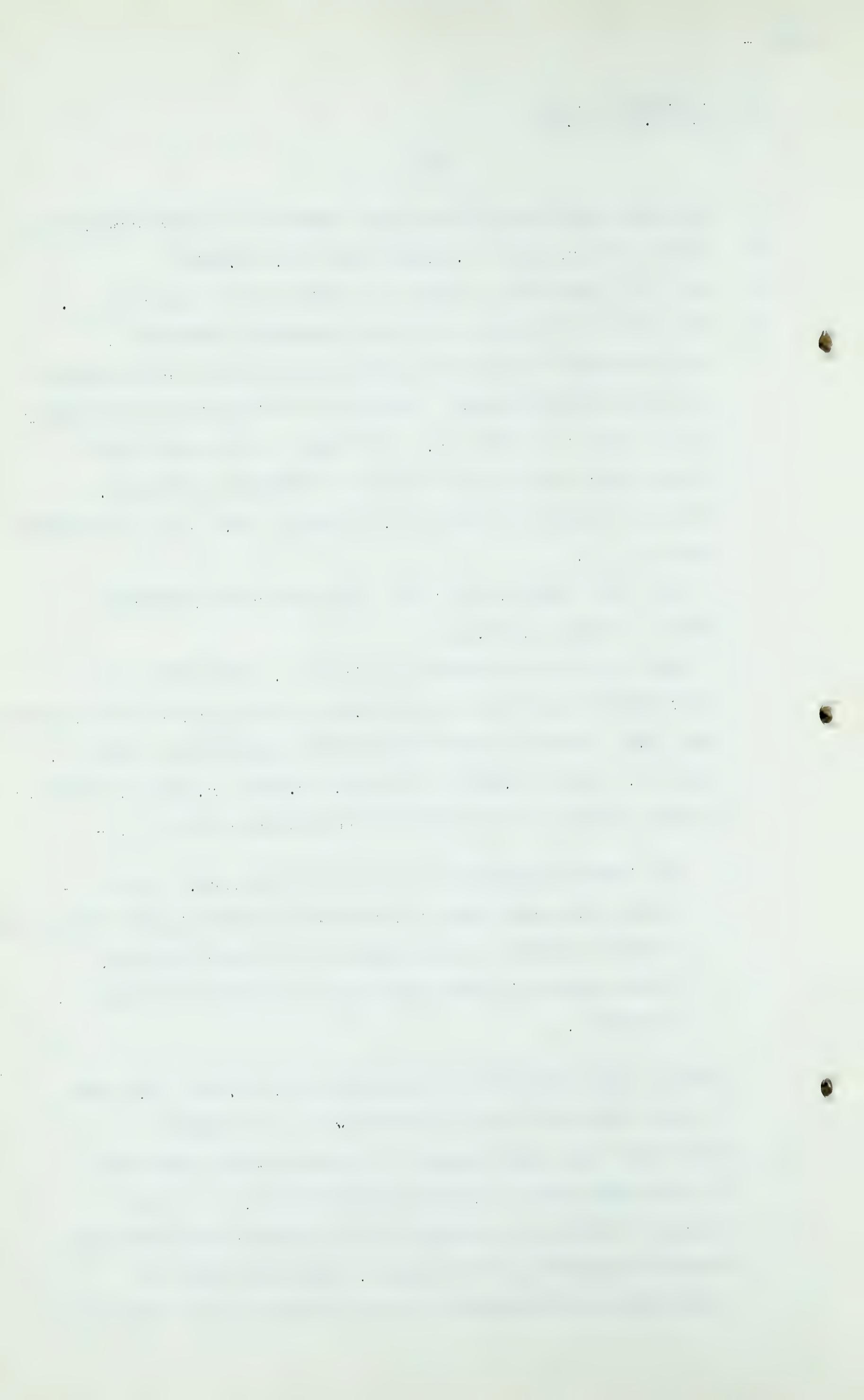
A I could not help but agree with him. I understand he is a very eminent and able lawyer, and an authority on Constitutional Law, and I would not dare dissent from anything he said.

Q Well, of course, I would. Now, Mr. Milner, I notice on page 6 that you say in the second full paragraph there, -

"It may be necessary in the near future, and thereafter for many years, to draw gas supplies principally from gas/oil fields in preference to dry gas fields, so that the oil in the former may be produced and marketed."

Are you suggesting by that paragraph, Mr. Milner, that the dry gas fields are to be used only for peak loads?

A That might very well happen if you have large quantities of distillate gas or gas/oil production, and if you can only produce or recover the oil and the distillate by some way disposing of the gas, it certainly might be very much in the interests of the Province to see that that



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was done.

Q Well, then - were you going on to say something else?

A No, I was just going to use or say that Pincher Creek has been mentioned before as an example.

Q How do you apply that? Pincher Creek is a distillate field, and we get those products from the distillate produced by those wells?

A Yes.

Q We sell the products?

A Yes.

Q Then we export the natural gas. What is your contention, Mr. Milner, that we ought not to export the natural gas? That we ought to use it for peak loads in the Province?

A No. Your production from Pincher Creek, though, I would suggest, should not be all the traffic will bear. There may be other distillate fields come in, of the same character, perhaps in the same neighbourhood, within economic distance, and I know of no particular reason why the Pincher Creek field should, by the expenditure of a lot of money on plant, should be immediately geared up to a production anywhere from 80 billion to 125 billion a year. I do not think that would be fair.

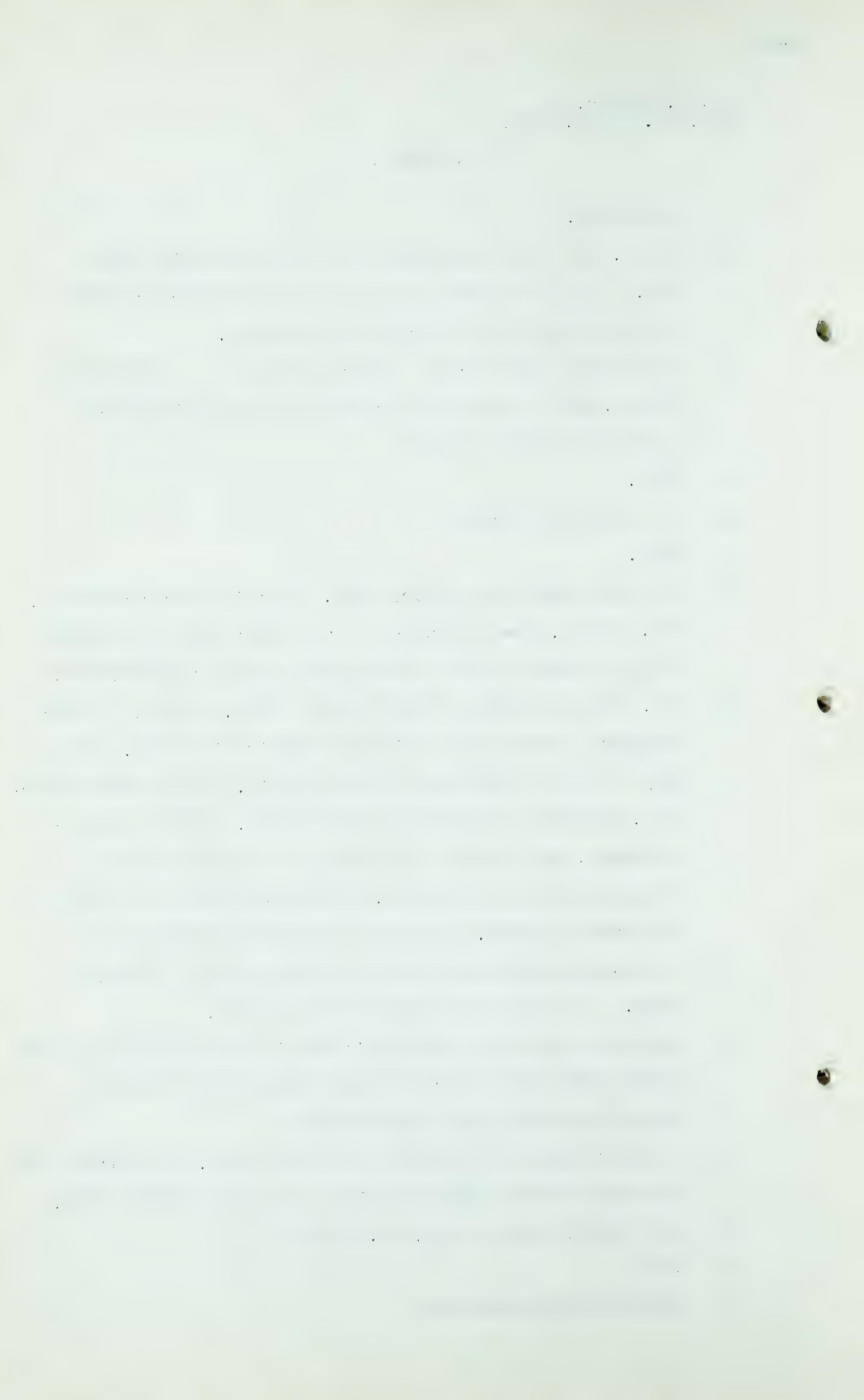
Q Can you tell me of any other field in this Province at the moment that can produce the equivalent of 80 billion cubic feet and could be geared up?

A I do not know as of today of another field, and neither of us know what the situation will be in six months' time.

Q How long are we to wait, Mr. Milner?

A Who?

Q We potential exporters?



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A The future is long.

Q And so is the past.

A Not very long, from my view.

Q Well, in any event, your point is, I take it, that the dry gas may be used for peak loads in this Province and for no other purpose?

A I think that may well be the situation which, in the course of time, may develop.

Q Well, can you tell me how there can be expected to be development under such a plan?

A How there can be what?

Q Development?

A Development of what?

Q Of a field that is only expected to supply the peak load?

A That is one of the reasons that we advocated a pooling, and if you will refer to the Report, the Interim Report of this Board, you will see that the matter is discussed there at some little length.

Q It has not been suggested by anyone, so far as I know, that Pincher Creek is to supply all of the export requirements, Mr. Milner? You are aware of that, are you?

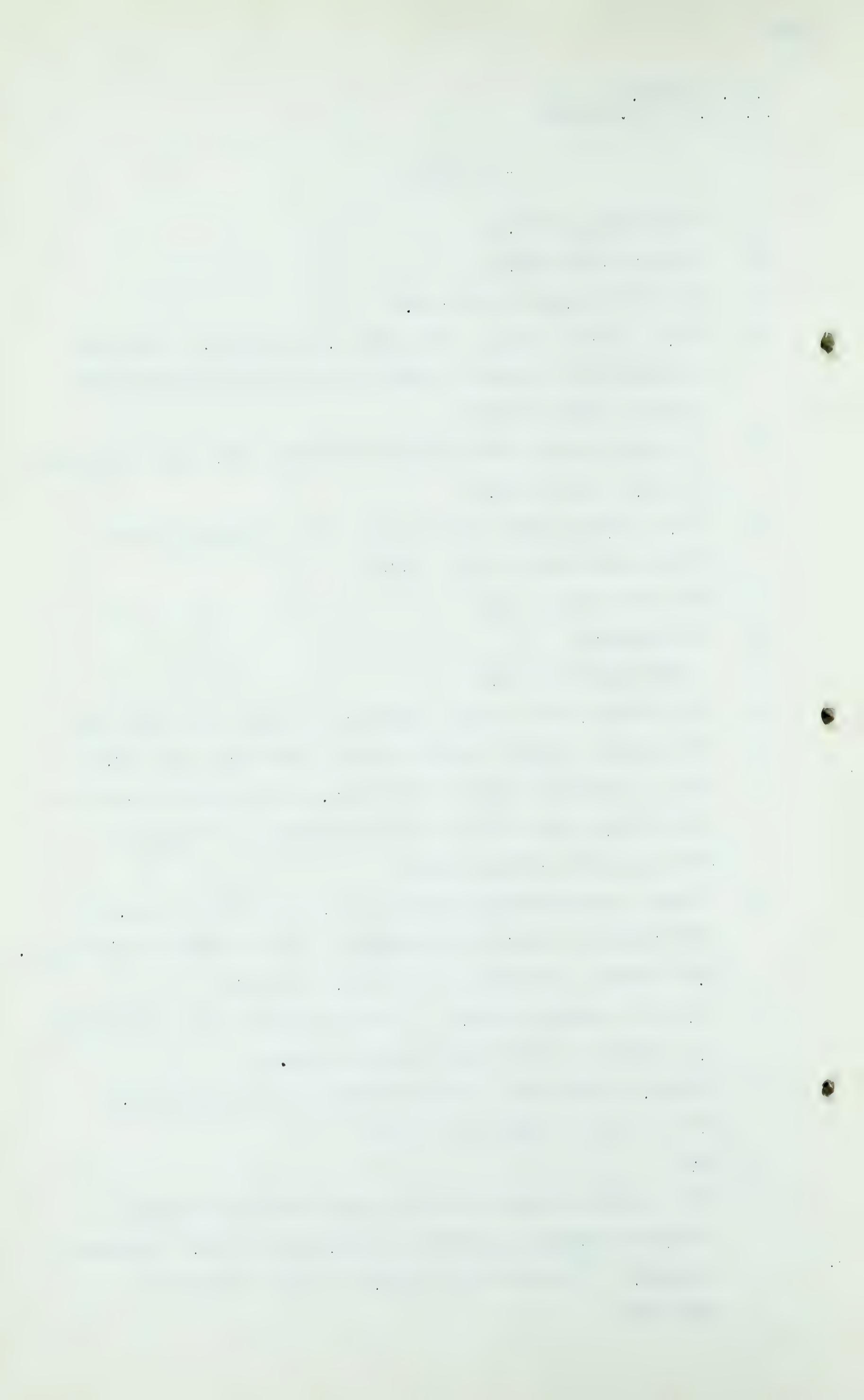
A Yes, I am aware of that. I would suggest, as I understand it, that it is certainly the major part.

Q Because, after all, the gas is there and is available, and you do not want it, do you?

A Who?

Q You, the Northwestern Utilities and Canadian Western?

A I am not speaking on behalf of them, that is Mr. Brownie's business. I am a retired gent, as far as they are concerned.



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Q Well, let me put it this way, Mr. Milner. . . .

A Just a moment. If you ask me whether this Province needs them, I will say I do not know and you do not know, and nobody in this room knows.

Q Mr. Milner, Mr. Brownie told us that for the local utility, that is, Canadian Western, to attempt to obtain gas from Pincher Creek was unthinkable at the present time.

A At the present time I would think it would be very expensive.

Q And it would not be economically feasible?

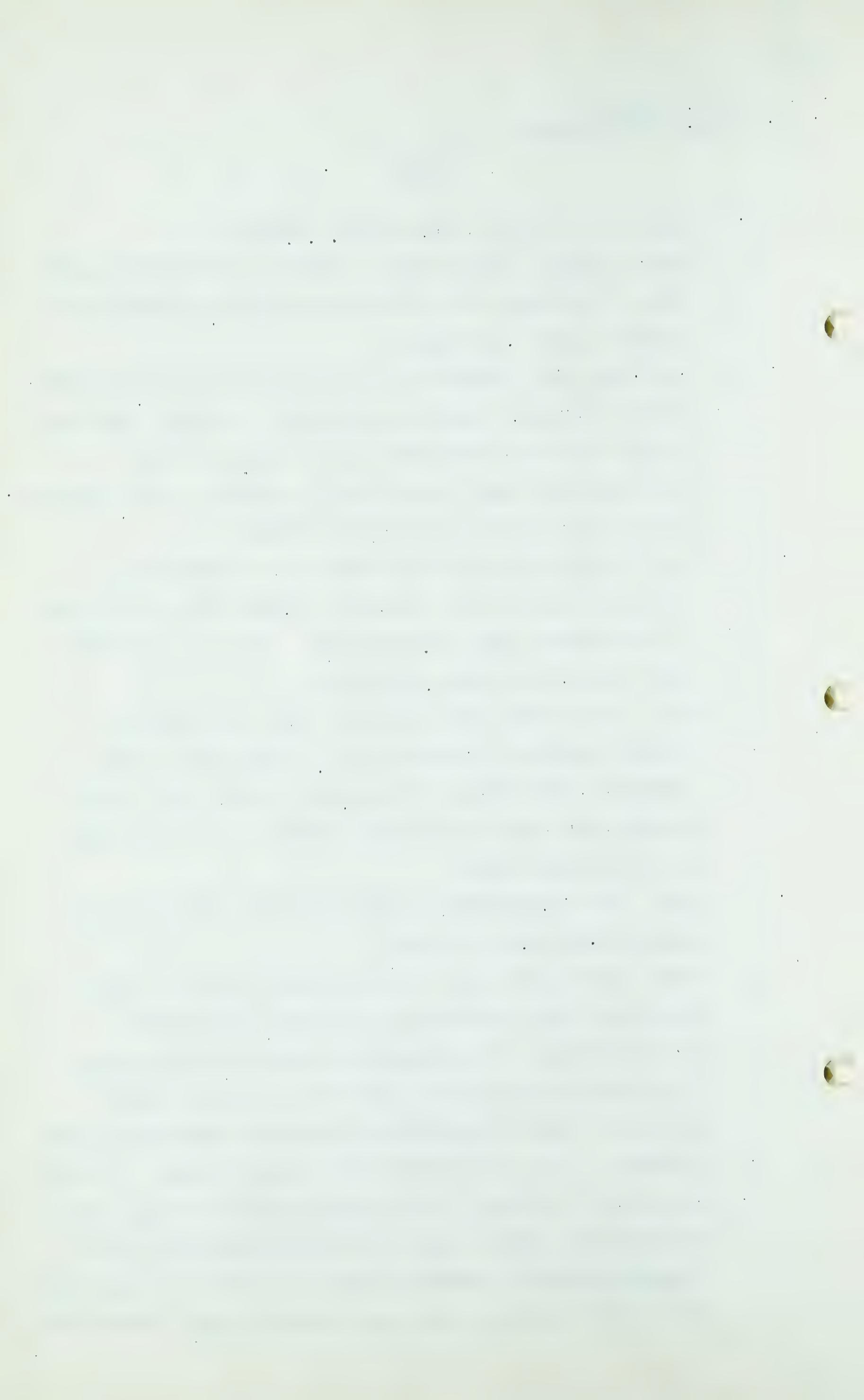
A No, I would not say that it would not be economically feasible, but it would certainly increase the price of gas to the consumer very substantially. We may have to face that one of these days, and pay it.

Q Now, do you think that it is fair that the Gulf Oil Company should be expected to sit on the gas, or that distillate down there, for years and years, until it is decided that there is an export market in the terms that you put it forth here?

A Well, as I understand it, they have been sitting there quite a while there already.

Q Isn't that all the more reason why they should not get a return on their investment in the very near future?

A Yes, certainly. I am sympathetic with the Gulf people. I certainly think they are entitled to get the market as soon as they can consistently with the interests of the Province. I am not opposing their export of gas. It all goes back, Mr. Nolan, to my suggestion that it may not be essential for Gulf to gear their field facilities up to a maximum export, a maximum amount, and then come back and say to this Board, or some other Board "We have geared our-



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selves up to x and we are only now producing x - y, we want to get to operate our entire facilities and dispose of x gas." I would say that because it is quite possible other fields may appear and have a right to participate in that market.

Q And how long do you think it will take before the other fields appear and have a right to participate in the market?

A I do not know. You had better ask some of these geologists around here who can gaze into the ground and tell us all about gas that does not exist.

Q To whom are you referring, Mr. Milner?

A Just to the profession generally.

Q You just cover the field. There is something said in your brief about two markets being better than one?

A Two which?

Q Two markets for our export gas?

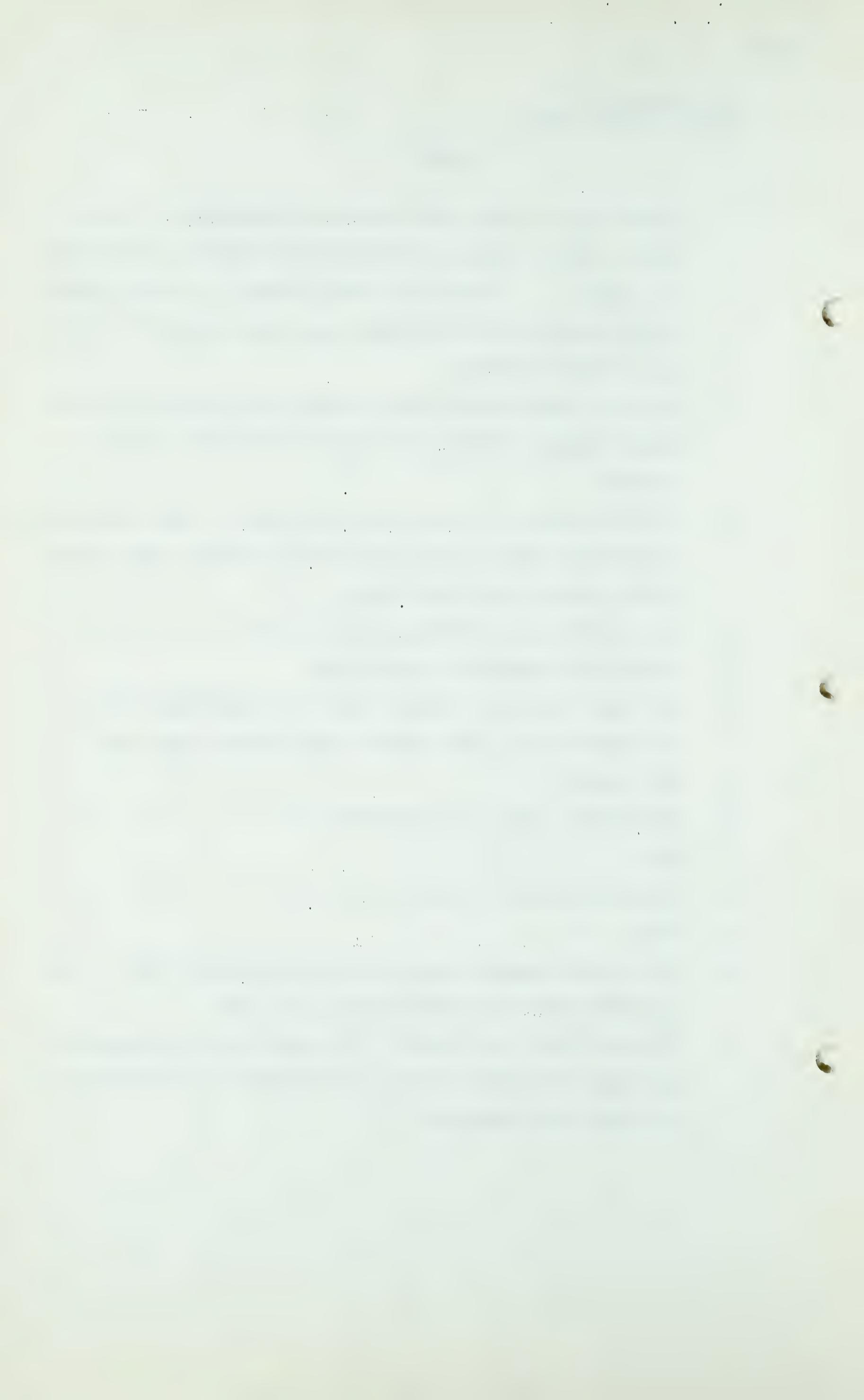
A Yes.

Q Being preferable to one?

A Yes.

Q You do not suggest that at the present time there is gas available for two export markets, do you?

A I do not know, Mr. Nolan. It depends on the amount of gas that this Board finds is available, and it depends on the two export markets.



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Q Yes, it depends on the market there is and where it is and what company can supply its requirements. I suggest to you at the present time that the evidence in this case makes it abundantly clear that there is only gas to support at the best one export market.

A You have been listening to the evidence. I am prepared to leave it to the Board.

Q What is your point in saying there will be two export markets?

A Because I do not think this Province should be forced to rely on one market or be tied into one territory. I can see the benefits of this Province in various territories. I do not say anything should be done now which commits the gas of this Province to one market or one territory.

Q Besides my company, as you are aware, interferes in no way with your operation, with our proposed plant. I am sorry, your local utility operation.

A While I was President they certainly had every desire to interfere.

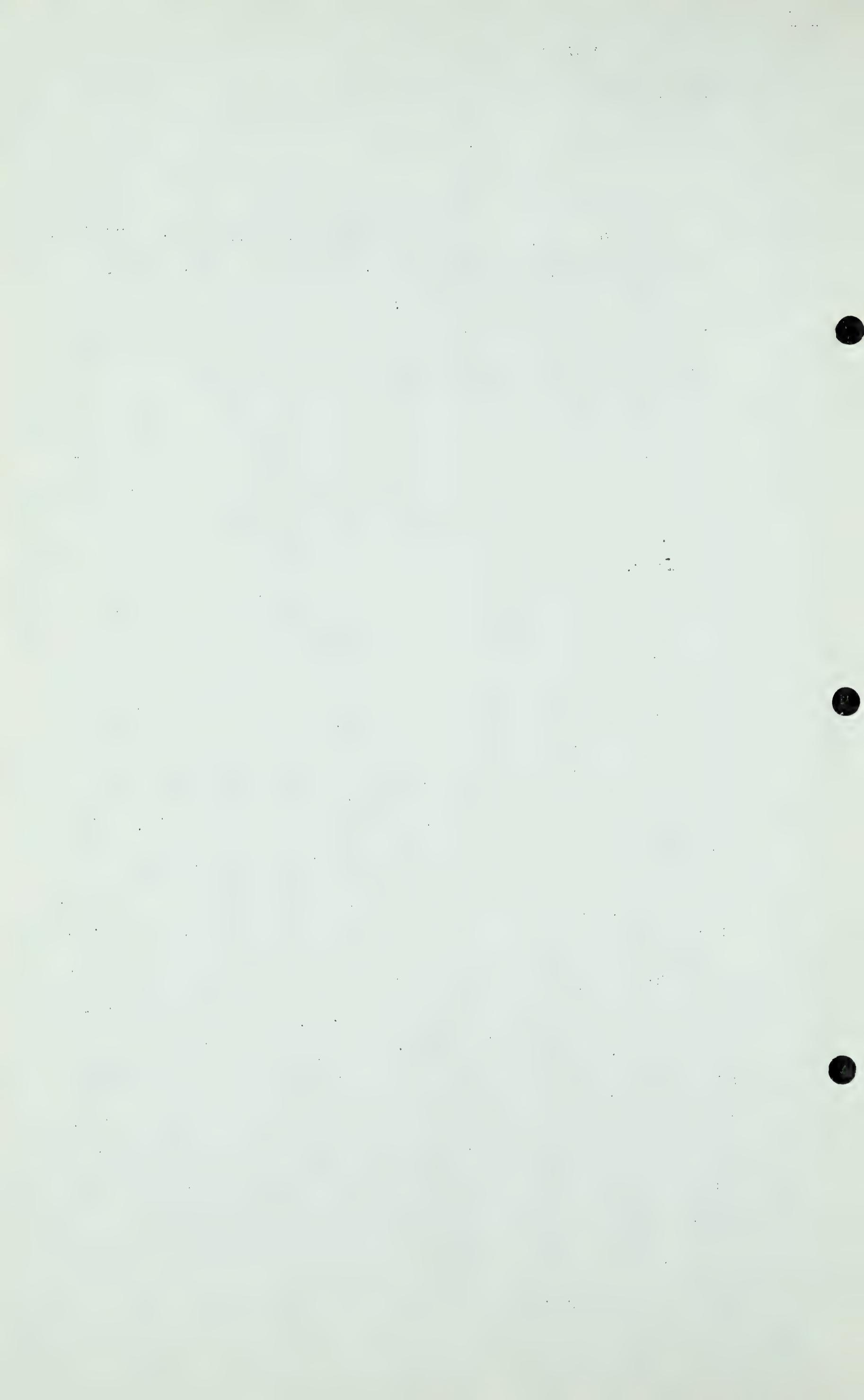
Q Have you followed the record of the evidence here. Do you know what the project is of the Northwest Natural Gas?

A Not with any closeness, no. I imagine their plans have changed a little bit since those halcyon days when gas was flowing out of their ears.

Q What was flowing out of their ears?

A Gas.

Q I have known it to flow from other orifices. Mr. Milner, there are only one or two more things I would like to mention to you, if I may. You say, Mr. Milner, on page 7 that export



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will tend to increase the price of gas to the domestic and industrial consumers in Alberta. Now, Mr. Milner, how long have the utilities in this Province been in operation? I think the Calgary, the Canadian Western was about what year?

A The Canadian Western Natural Gas started business in 1912, that is 40 years next year.

Q Was gas laid into Calgary in that year?

A 1912.

Q From Bow Island?

A From Bow Island.

Q And that was in Mr. Coste's day?

A That was Mr. Coste's day.

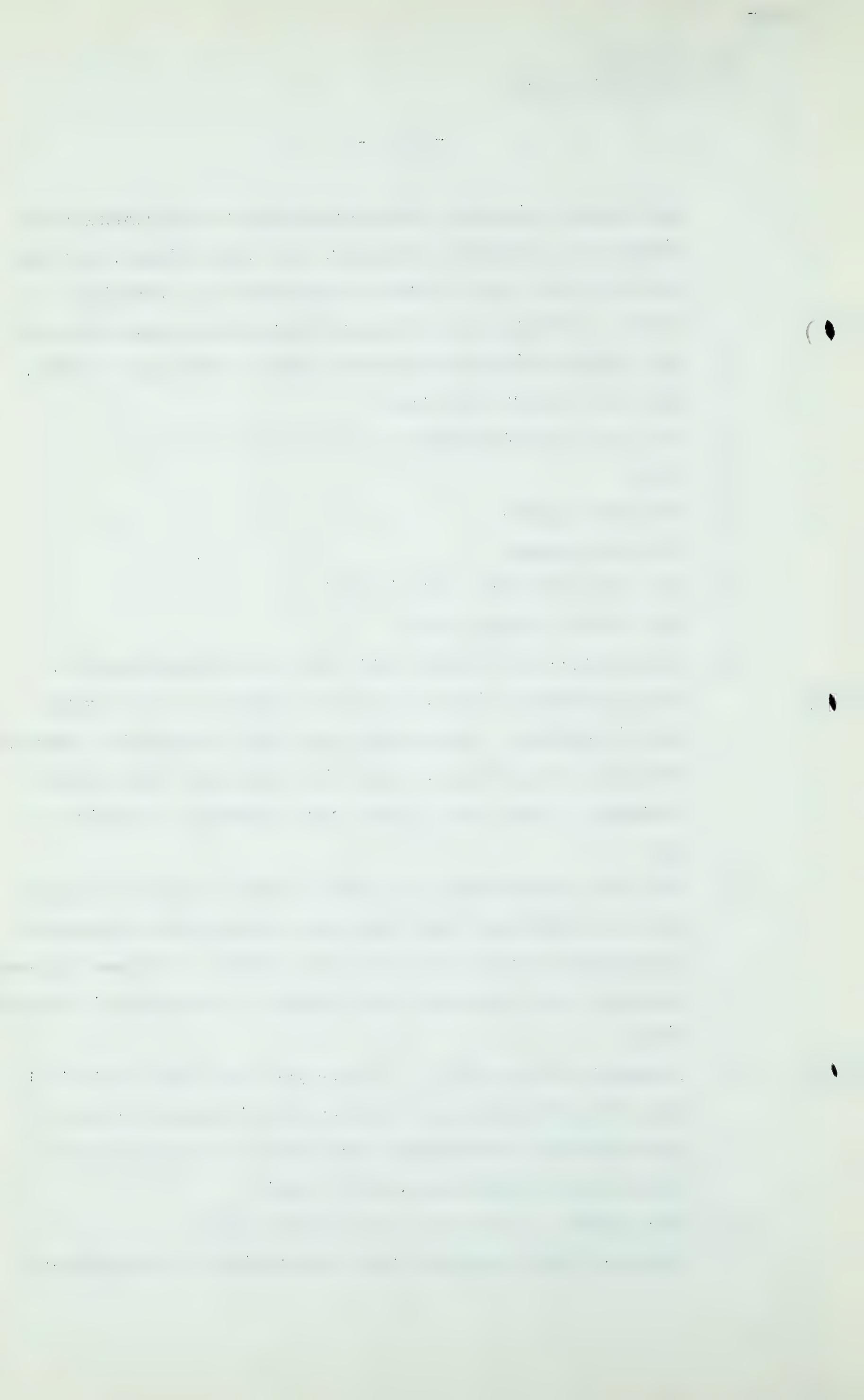
Q And you say, Mr. Milner, that gas in the foreign market, due to dearth of fuels, may have a greater economic value than in Alberta. During the years that the utility companies have been in operation, I take it, there have been certain increases in the cost of gas to the consumer, the price of gas?

A Well, now, do you want me to make a public relations speech about the decreases that were given and then the occasional unfortunate increases that had to be faced. I do not believe you would want me to make that speech. I have made it several times.

Q I shudder at the thought. I wish you would tell me if it is not a fact that over the years the utilities with which you are connected have obtained increases in the price of gas. You got one the other day, didn't you?

A Yes, we did. It is not very popular either.

Q However, those increases have been obtained in the past and



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there has been no export, has there?

A No.

Q Why do you say that export will increase the price of gas, when we know the price of gas has gone up without any export?

A The price of gas is bound to go up in any event. I do not think there is any question about that. Its economic value today is -- its price is away below what it should be, taking into consideration its economic value compared with competing fuels. The price of gas all over the continent is going to go up and it should go up. Some day they might go so far as to price themselves out of the market. What I am driving at is that the price of gas should not be regulated somewhere where the value is higher than it is here.

Q Why do you think that could possibly happen when the price is under the control of the Board of Public Utility Commissioners?

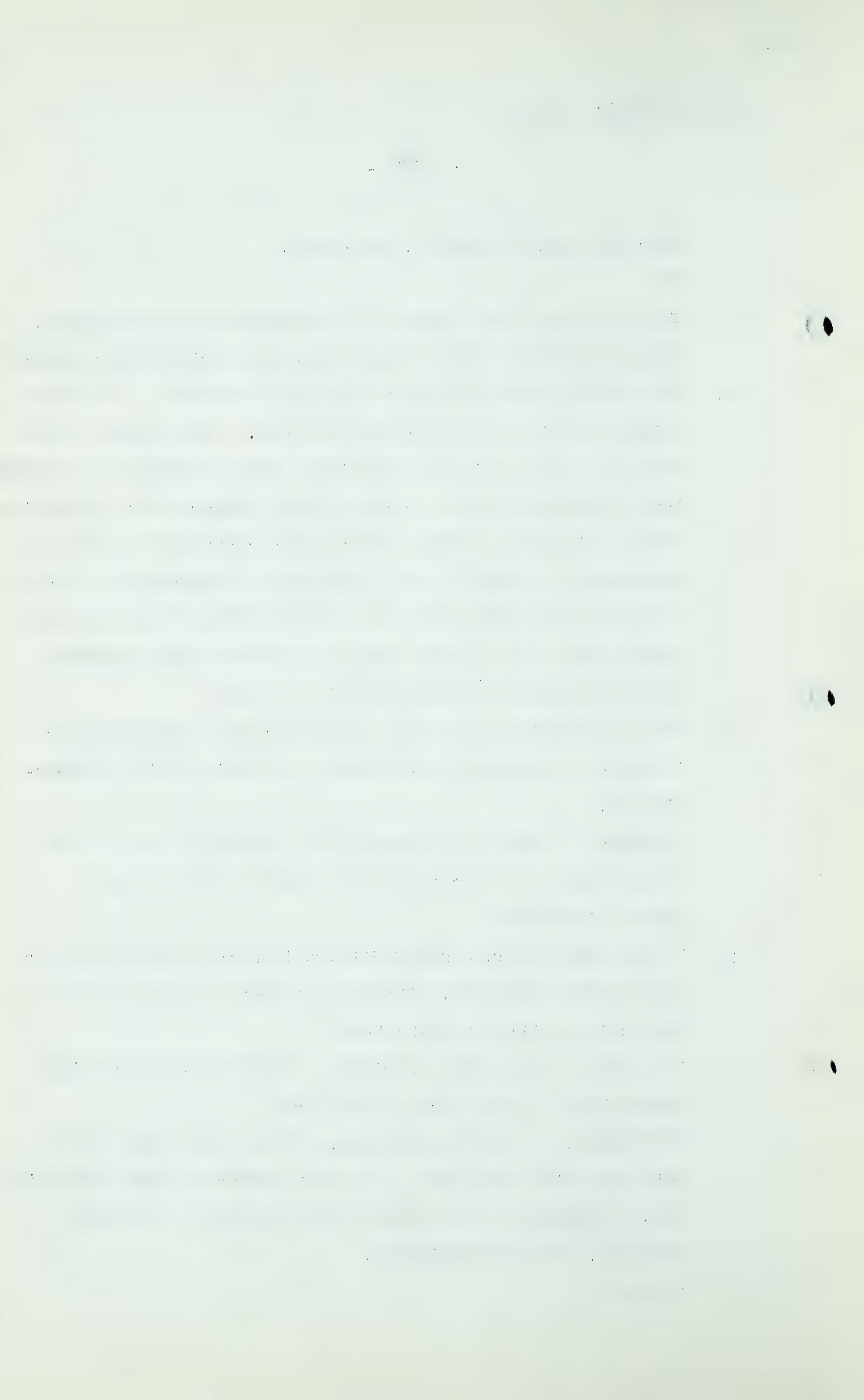
A I remember a contract between your company and one of the cities down on the Coast and it seemed to me that was clearly indicated.

Q Do you think because Henry Gellert is going to pay more for his gas that makes any difference in what I have to pay to the public utility company here?

A I am sorry to say that is right. I think that Henry might be the boss of the price of gas here.

Q Mr. Milner, you said a year ago, and you say today, and I think you will continue to say that tomorrow, that there will be an increase in the price of gas because of the factors involved, that is inevitable?

A I agree.



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Q Since that year has gone by there have been increases?

A Yes.

Q And I point out to you none of them has been due to export?

A That is right.

Q So far as Viking is concerned, you own the gas at Viking, don't you?

A Yes.

Q Do you expect there will be an increase in the price of that gas that you own in that field?

A Yes, that field as it gets older tends to increase in the production cost.

Q Yes?

A We would think that in the last 10 years the production cost in that field is at least double.

Q And I believe the history of gas fields is that they do decline and they have to be replenished by other discoveries and other fields?

A That is correct. This town should know it well, too. Of course, you are too young to remember.

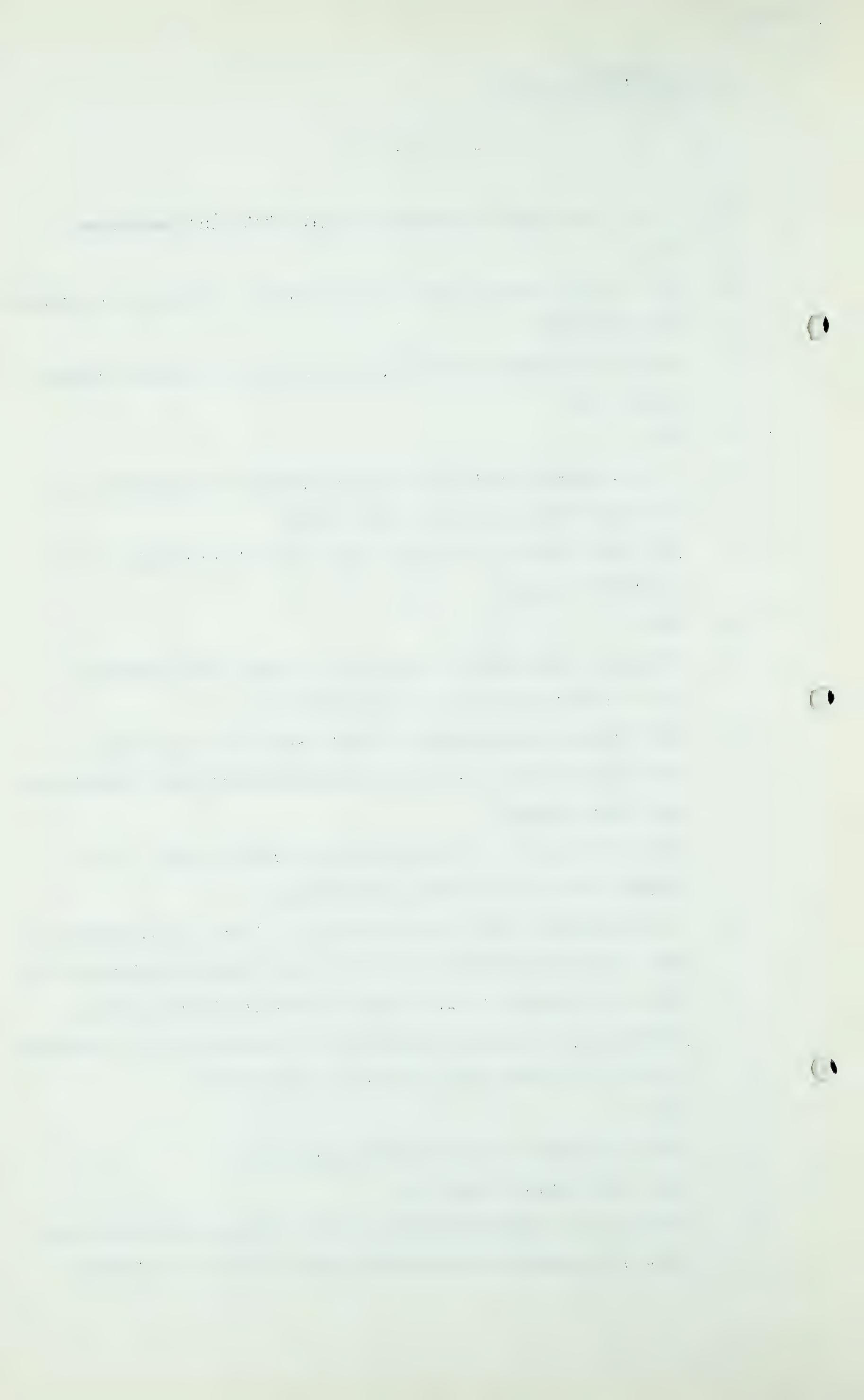
Q I can remember the light in the sky. I did not know what it was. Then in another portion of your brief you mention the fact -- on page 9 it is -- that there should be a block system set up, and that there should be no open end contracts so far as ultimate quantities are concerned?

A Yes.

Q That is on page 9 in the first paragraph?

A Yes, I am familiar with it.

Q You are not suggesting for a moment that any contract that would be granted by this Board would be for an unlimited



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quantity of gas, are you?

A No, I certainly am not.

Q But if additional gas requirements were wanted, another application would have to be made?

A Yes. That ties in with what I said about gearing of fields in anticipation of a continual or additional block. You also notice down there that in my submission, our submission, when you get more gas and when anybody comes back for an additional block, then the thing should be recalculated to ascertain whether, at the date of the new application, there is still 30 years' supply for this Province, if 30 years is the period chosen by the Board.

Q You would prefer 50, I gather from your submission?

A Well, as an Albertan, I would prefer 50. If I were an exporter I would prefer 30.

Q You state also on page 8 that Inter-Field would ensure elimination of duplication. Have you a familiarity with the project of the Northwestern Company which will enable you to say that there is no duplication intended by that company so far as the distribution systems of the local utilities are concerned?

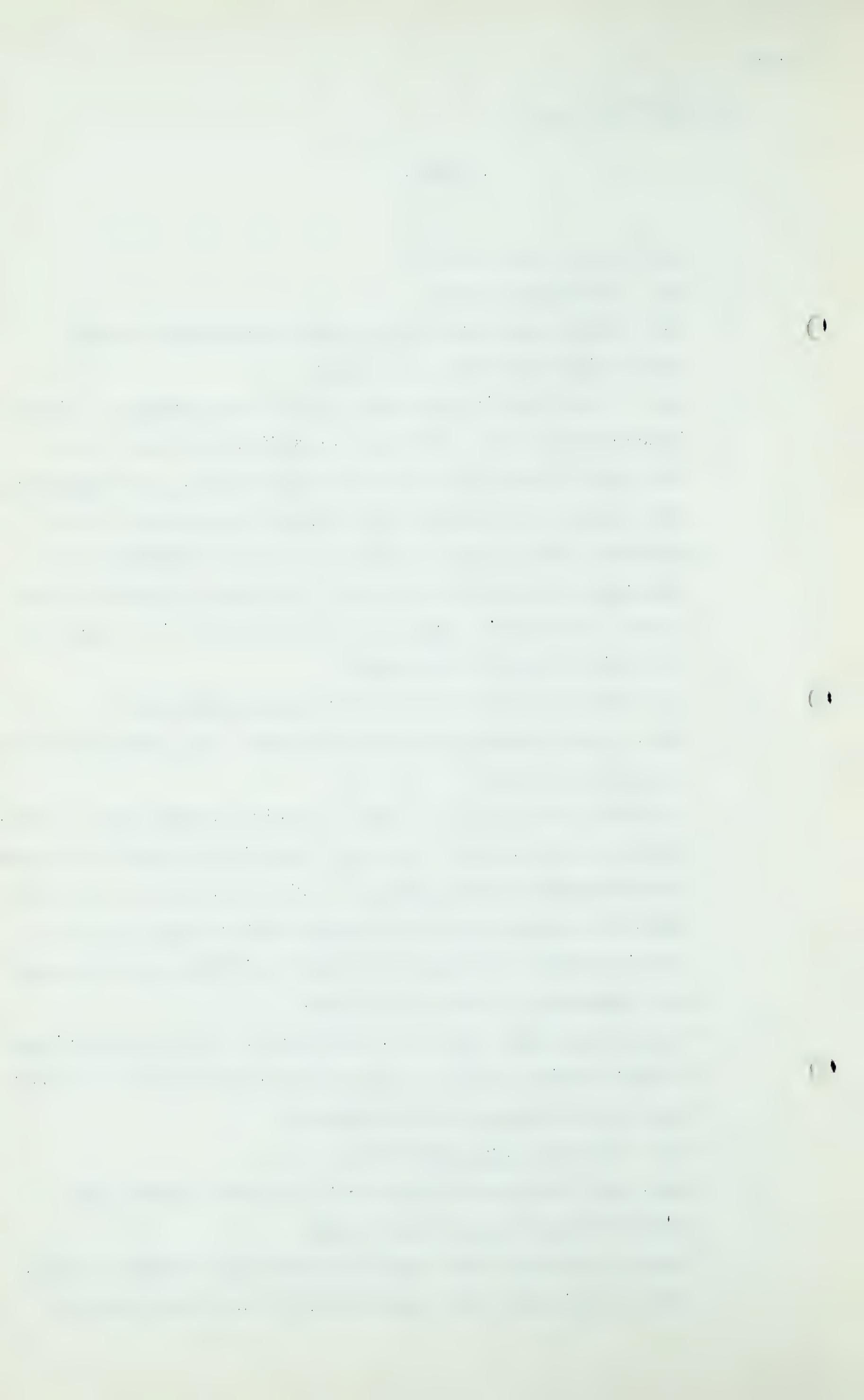
A As I understand it that is correct.

Q You have no doubt, have you, Mr. Milner, that the authorities of this Province could at the present time control the amount of gas that is exported from Alberta?

A No, I would not agree with that.

Q Well, will you agree with me that you cannot export gas unless you have a permit so to do?

A I would agree that you could not export gas without getting, without having the plan approved by the Railroad Board of



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Canada or by the Transport Board of Canada and get a permit from the Minister of Trade & Commerce.

Q How are you going to get gas out of the Province of Alberta?

A I refer you again to my friend Professor Smith.

Q That interests me because you say your proposed company is going to sell gas to the exporter, is it not?

A Yes.

Q That is one of the functions of the new licensee?

A Yes.

Q And that exporter would be able to buy or would be entitled to export by reason of the permit issued by this Board before whom we are appearing?

A That is what is contemplated if that company, as we believe it is, is not subject to the jurisdiction of the Transport Board of Canada.

Q To put it another way, Mr. Milner, if this Board is without authority to grant a permit, then there could not be any legally constituted exporter to whom you could sell your gas?

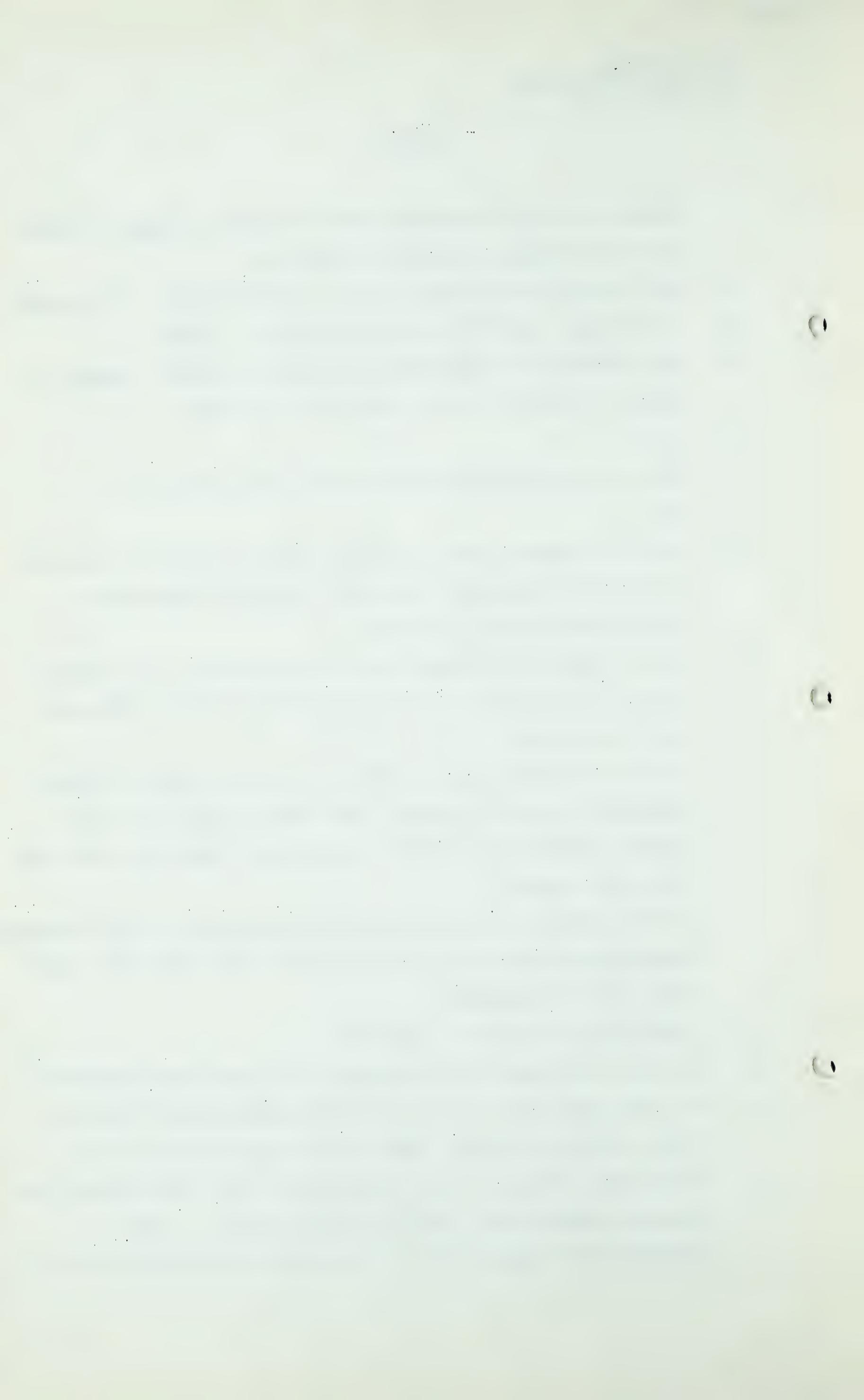
A How is that again?

Q If this Board is improperly functioning under the Gas Resources Preservation Act, then any permit for export that they might issue would be invalid?

A That would be correct, certainly.

Q So that there would be no person holding an export permit?

A No, Mr. Nolan, you and I are at cross-purposes in talking about an export permit. That is the phrase that has been used around here, but as I understand it the only person who has any authority to issue an export permit -- that is, assuming the validity of the Act which you refer to -- is



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the Minister of Trade and Commerce.

Q You say he is the gentleman who should issue the export permit for gas from Alberta?

A My understanding of the law is that he is the only one who has the authority to authorize -- the only one authorized to issue a permit for the export of gas out of Canada.

Q The export of gas out of Canada, but we are in Alberta exporting to British Columbia. I suggest to you that the only body that can do that is this Board before whom we are appearing. If it is improperly constituted, there could be no legal export permit from Alberta?

A If you are asking me as a constitutional lawyer, I will say I do not know. It is not what I was taught 20 years ago. It seems to me that is inter-provincial trade and commerce if ever there was any.

Q Granted it is inter-provincial trade and commerce and granted that this Board has no power to grant an export permit, who are you going to sell your gas to for export?

A What is that?

Q Who are you going to sell your gas to for export?

A When you say "to whom am I" . . .

Q Of course, I am getting the utilities and you confused.

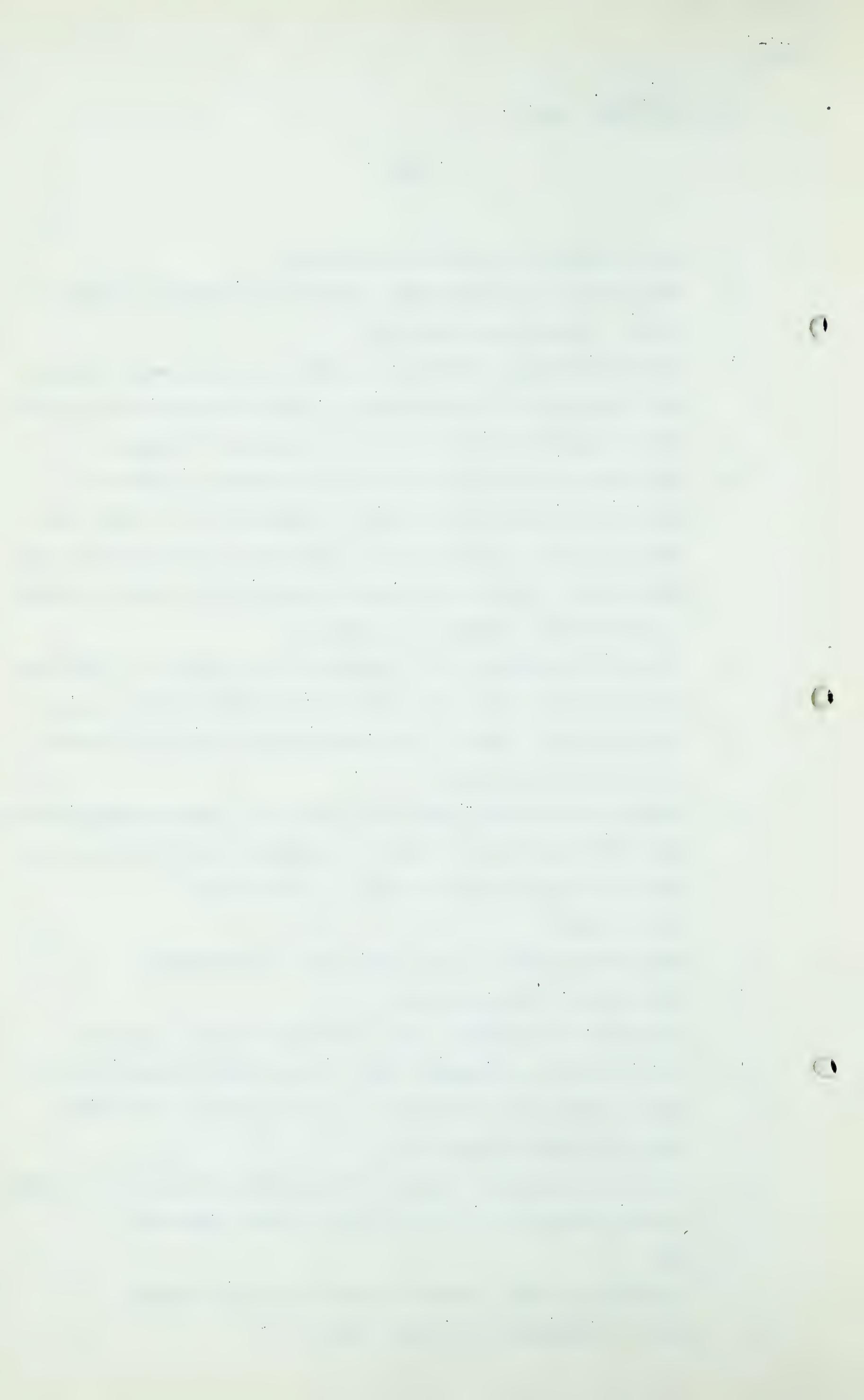
A Inter-Field I am speaking for. If you will be specific and tell me what you are trying to get out of me, I will try and do my best to meet you.

Q I am sure you would. Part of the project of this new company to be incorporated is to sell gas to the exporter?

A Yes.

Q And where is that exporter going to get his permit?

A Well, if Professor Smith is right . . .



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Q Yes?

A And the Gas Preservation Act is ultra vires . . .

Q Yes?

A . . . then he will have to get his permit, as I have suggested before, or get his authority, as I have suggested before, to construct his system, from the Transport Board and thereafter, if he is going to take gas out of Canada, he will have to get the permit of the Minister. If he is not going out of Canada, in order to construct his lines he must still get the approval of the Transport Board of Canada, if he passes over any of the Provincial boundaries.

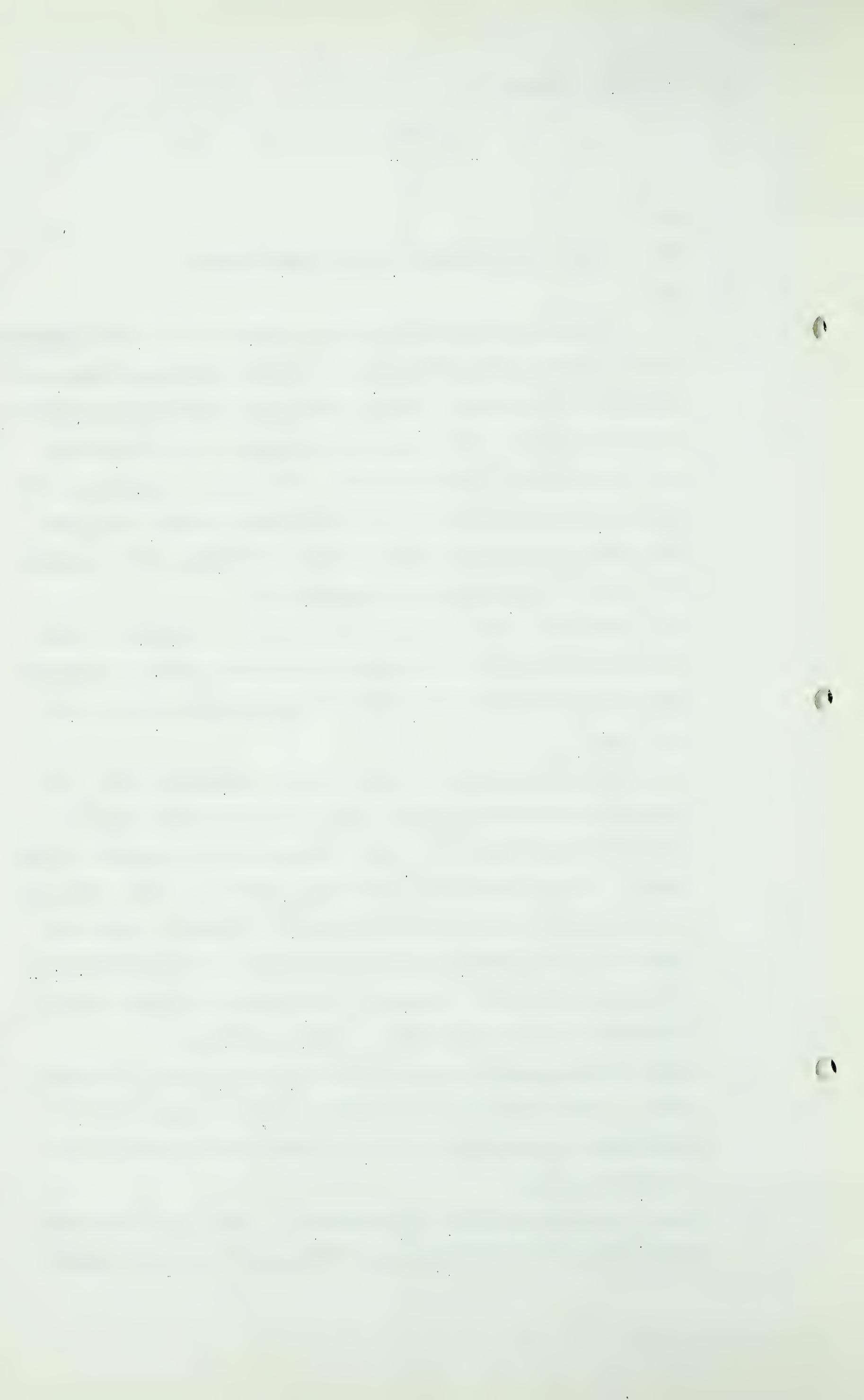
Q So I understand you perfectly well that the person to whom you would sell gas for export would be the person granted a permit by the Board of Transport Commissioners and not by this Board?

A I am saying that is the situation as I understand it. If the Gas Preservation Act is ultra vires and could not be effectively amended. Now, Mr. Nolan, do not try and get me wrong. As you understand from this brief I am very strongly of the opinion that everything possible should be done to establish the jurisdiction of this Board or of some Provincial authority which is going to continue to control gas for the protection of the people of this province.

Q What you have written here is more in sorrow than in anger?

A What? That is something I think is very useful for the gentlemen in practice to chew over and find out whether it is right or not.

Q Well, all right, we will chew over it. You say on page 10 that any cost of handling gas by Alberta Inter-Field would



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not be an extra or additional cost to any consumer or purchaser, but would be in substitution for a gathering cost which would be properly chargeable by any other system. Now, Mr. Milner, there can be no doubt about it, can there, that the consumer will have to pay the additional cost of gathering?

A Which consumer?

Q Myself.

A In Alberta?

Q Yes?

A The consumer always pays the cost in the end in a regulated business. What we are saying there is there is no duplication of costs.

Q What I am saying to you is rather different. I am saying that somebody will have to pay for this gathering system that is supposed to be set up?

A Certainly someone will.

Q And I suggest to you that the producer will not be paying for it?

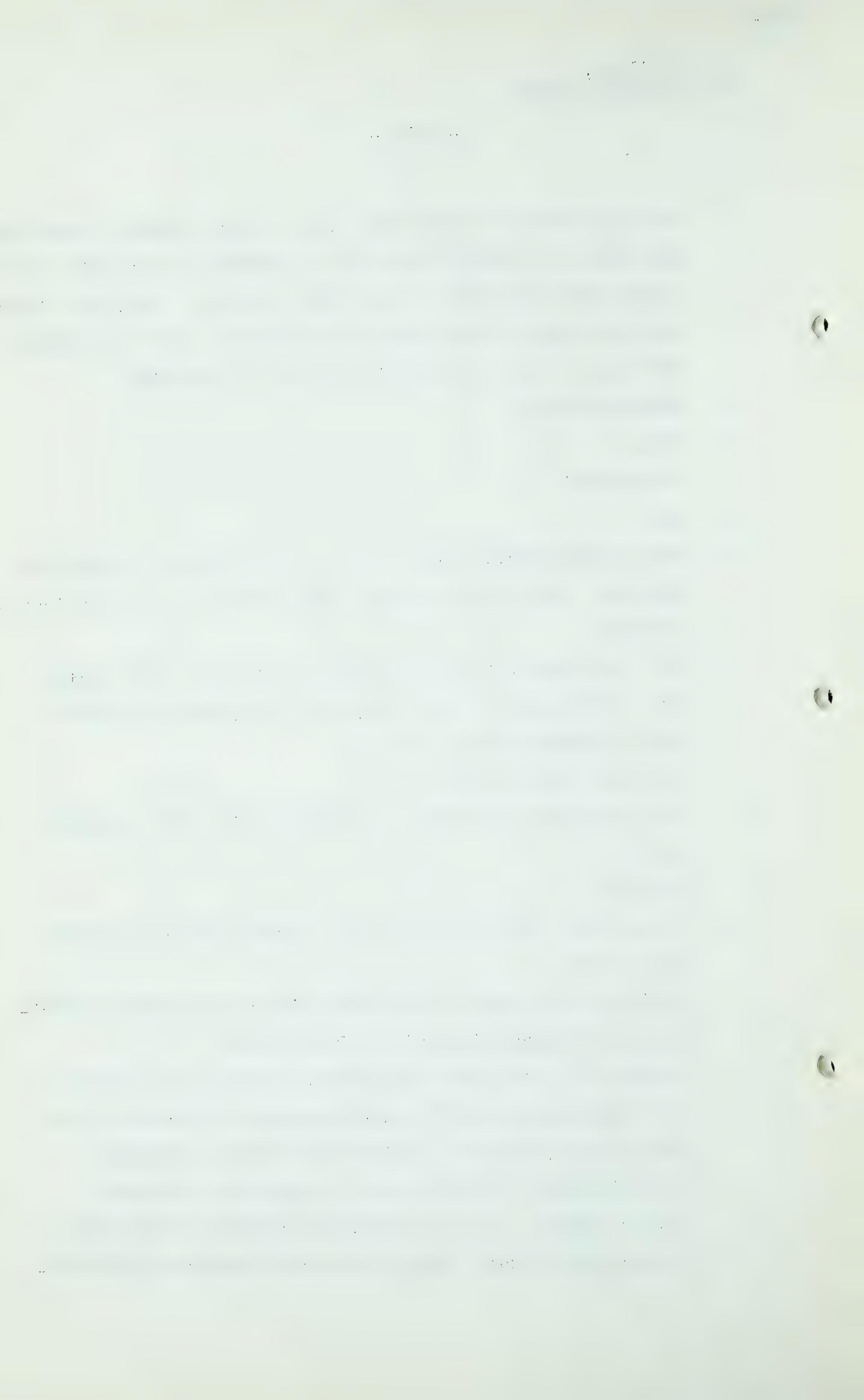
A He might.

Q It is either the producer or the consumer who will have to pay for it?

A I think the producer of oil pays quite a substantial contribution to Transcontinental Oil Pipe Lines.

Q I suggest to you under the system we project, as has been put forward by some of the applicants in this case, if an export company were to institute and build a gathering system it would be without cost to anybody in Alberta?

A Yes, Mr. Nolan. You contemplate a gathering system for the purpose of export only without any benefit to the Prov-



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ince and without any benefit to the people of the Province and for entirely selfish purposes.

Q Is this part of the speech you referred to a moment ago?

A No, but you are so eloquent that I have to endeavour to compete with you sometimes.

Q I will lower my tone of voice. You will agree with me it is within the power of a Provincial Government to say where the grid shall go, whoever be the constructor of that grid?

A No, I certainly do not.

Q You say the Board of Transport Commissioners are going to tell us about that?

A Absolutely.

Q And what fields might be touched?

A Yes. They are going to tell you where you can build the line.

Q And why are they not going to tell you where you can build your line, Mr. Milner?

A Because we are a Provincial company and we are not related to any exporter.

Q Distantly you are, but I won't press that.

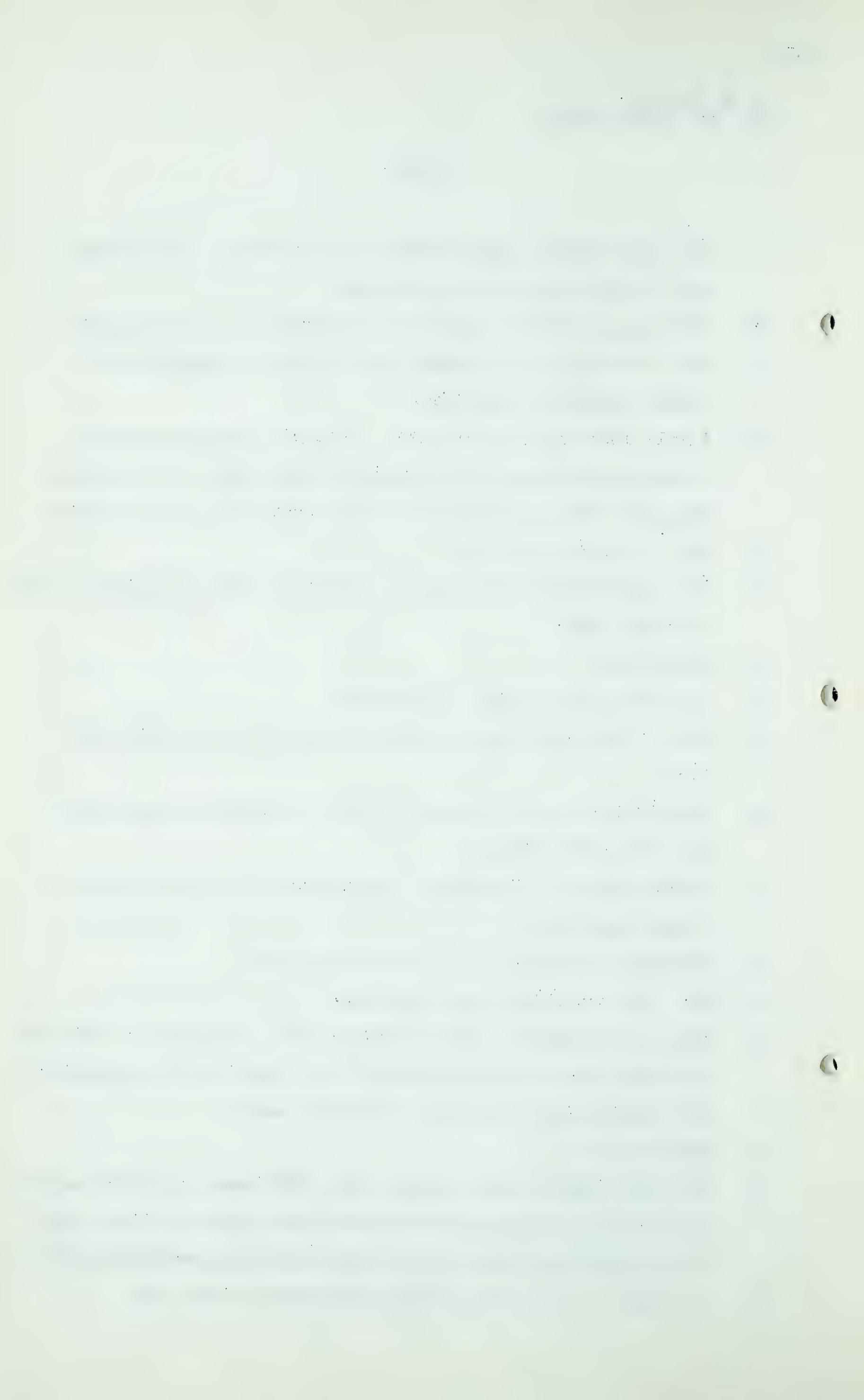
A No, I do not think even distantly.

Q And in the meantime and in between time, while we are waiting for more gas, so that you could feel justified in advocating the export, who is going to drill the well?

A Which wells?

Q The wells which would bring in the additional gas which would build up our reserves to the point that you would like them to be before you would be in a position to advocate export?

A I thought it was going along exhaustively right now.



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Q At whose expense?

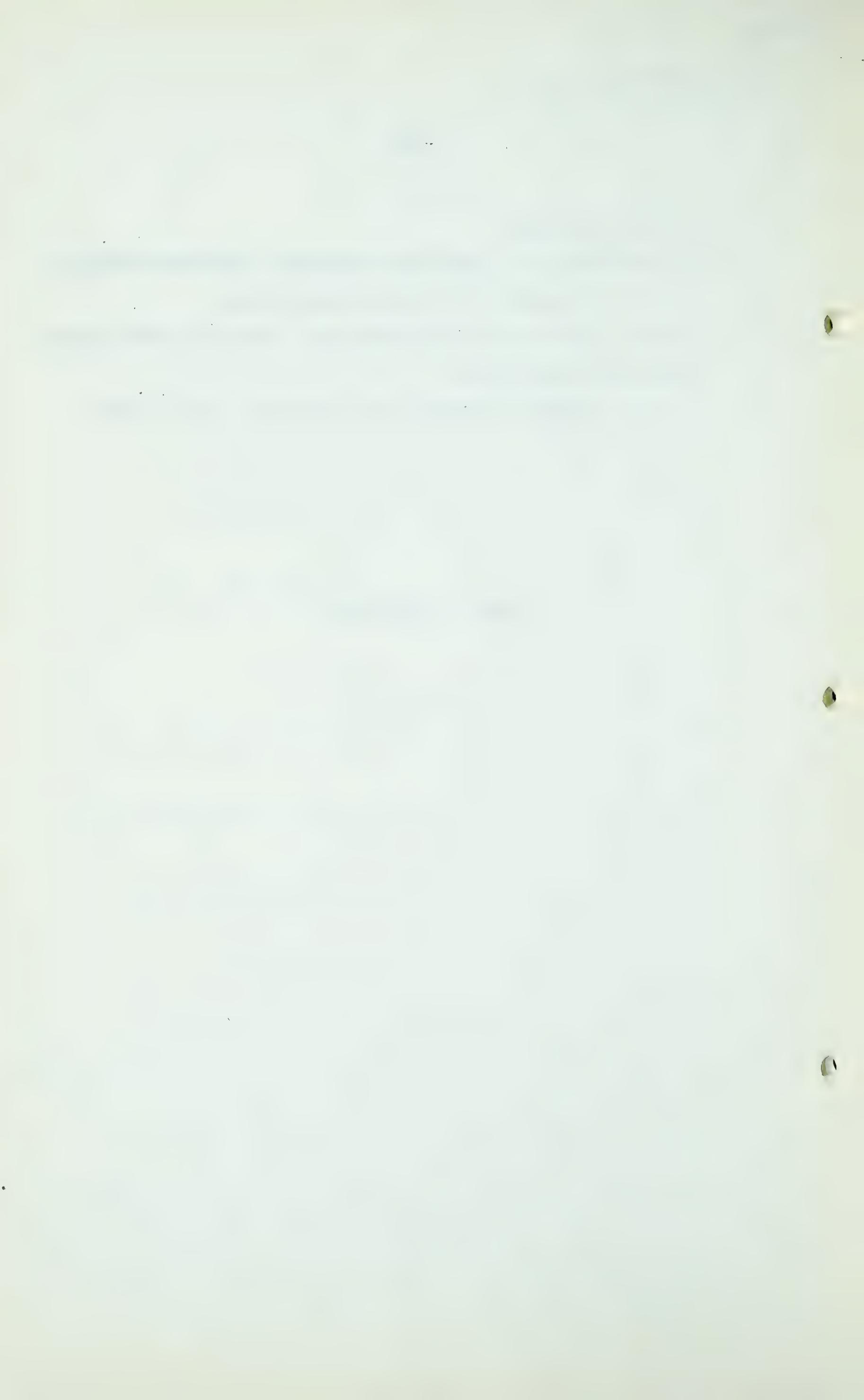
A At the expense of those people who are searching for gas,
or at their profit, if they are successful.

Q I think that is all I will ask you. Thank you, Mr. Milner.

A Thank you, Brigadier.

(At this stage the hearing was adjourned until 2 P.M.)

(Go to page 3381.)



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2:00 P.M. SESSION

Q MR. PORTER: Mr. Milner, I wish you would take a look at your brief, page 4. At the top of that page you will observe a clause quoted from the lease?

A Yes.

Q That is contained, I believe, in each oil or gas lease issued in the Province, and the effect of that clause is that the lessee covenants that he will not export gas out of the Province unless with the consent of the Lieutenant Governor previously obtained?

A Yes.

Q Now, that is an exercise of the Province's contractual right as landlord, which is a thing entirely distinct from its constitutional functions, at legislative level?

A Yes.

Q In the contractual field the Province is owner of those lands and commodities, enjoys, I think you will agree, all of the privileges that an individual would enjoy?

A Yes, I will agree with that.

Q Now, if you will go down a bit, I will read you this paragraph --

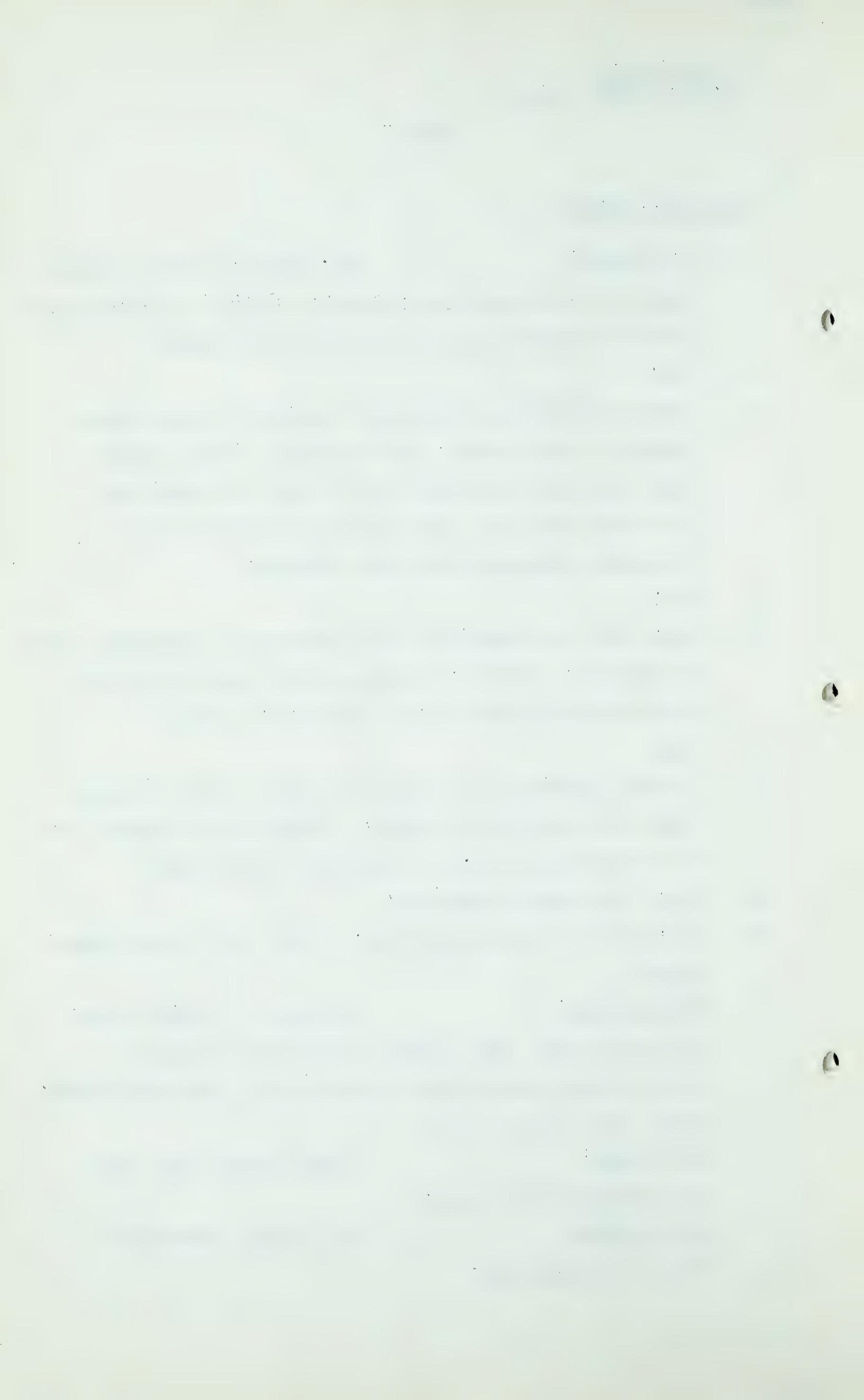
THE CHAIRMAN: I wonder if I might interrupt you a bit. What clause in the lease is that? I have a lease here and that is not the way the clause reads. There is a clause here 8.

MR. PORTER: was taken from the lease.

I just assumed that this

THE WITNESS: that is the new form.

It is there somewhere if



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THE CHAIRMAN: 8 is the one that appears to be on the same lines as quoted here.

MR. PORTER: Well, it is in different terms, a little, but you may have a look at it. I do not know that anything turns on the difference in language. It is a contractual restraint, anyway.

THE CHAIRMAN: There is another one, Mr. Porter, I think, towards the end.

THE WITNESS: No, I took that extract from a lease.

Q MR. PORTER: I recognize it, too, as having been at some time in the lease, because I remember before that you acknowledged that you did not know anything about constitutional law, that you and I argued about it.

A Yes. I do not think the difference in wording means anything there, anyway.

Q Well, my point is, it is an exercise of the contractual right of the Province?

A Yes, I will agree.

Q Now, to return to your brief again,

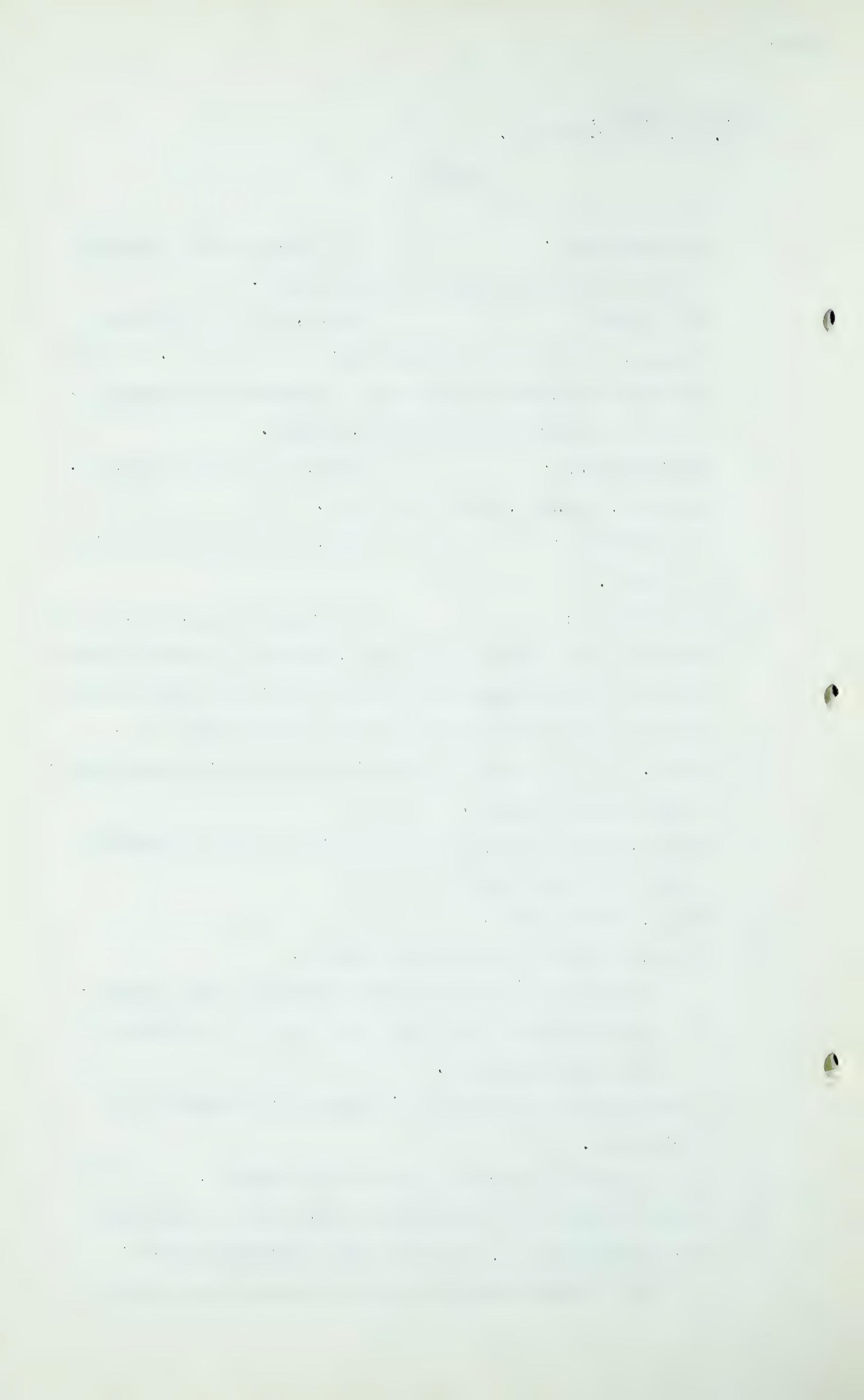
"A breach of this condition may entail the termination of the lease 'in so far as it is related to the Natural gas'."

I think that is true of this clause and certainly of clause 8.

A As a quotation from the terms of the lease.

Q Then you deal with something I would like to give some consideration to, because the next paragraph says:

"The effectiveness of this provision would appear



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"to be exhausted when consent to export is once given."

I wonder if that is so?

A Well, I can see that the consent might be given conditionally.

Q If the consent were given lease by lease?

A Yes.

Q A condition could be attached, could it not?

A It is a contractual matter, I do not see why not.

Q On that basis, the legislative disability of the Province would not preclude it from controlling its own gas at the contractual level?

A That is right.

Q However, that would not apply to lands owned by other than the Province?

A That is right.

Q Now the legal conception of Inter-Field, which is stated in this brief, is premised on the legislative disability of the Province, is it not?

A Yes.

Q I notice that the brief --

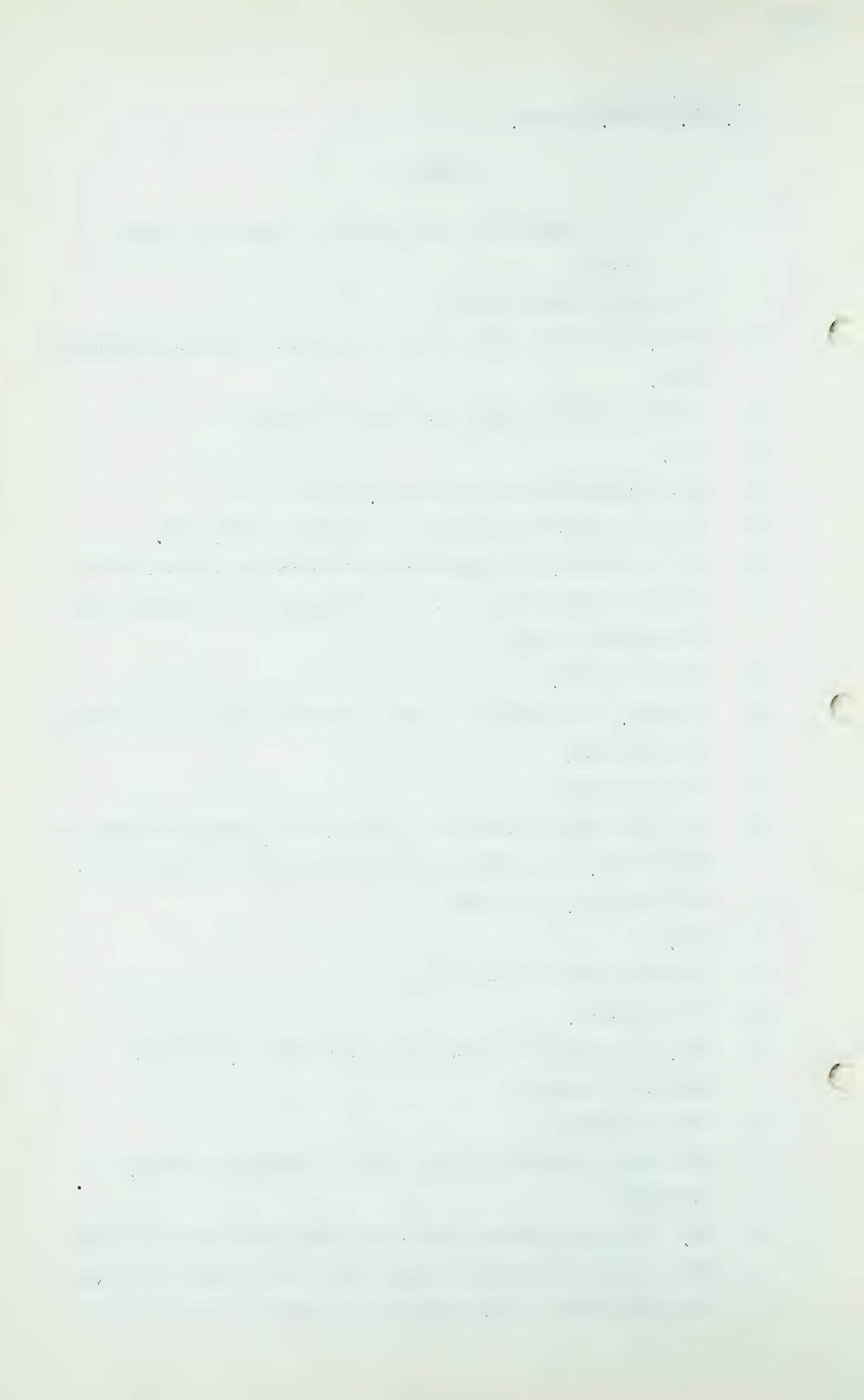
A Very largely.

Q Yes. It takes this form for legal reasons, not for physical reasons?

A That is right.

Q You have not submitted any plan of gathering system, I observe?

A No. We have prepared and there was filed with the Board two or three different schemes but one of them -- you can not apply any of them practically until you know in what



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direction the gas is going to go..

Q Precisely. And we all have the same difficulty?

A Yes.

MR. MAHAFFY: Perhaps if I might interrupt, Mr. Porter, he came in somewhat later than the others into the proceedings and he was not here when we did file them and they were exhibits in earlier Hearings, plans of Stone & Webster.

Q MR. PORTER: Well, I think Mr. Webster has said what we all know, they can only be illustrative.

A Yes.

Q Now, is there anything in these schemes, these plans, except the normal transportation of gas which Inter-Field would conduct on a utility basis on the normal level of efficiency?

A No.

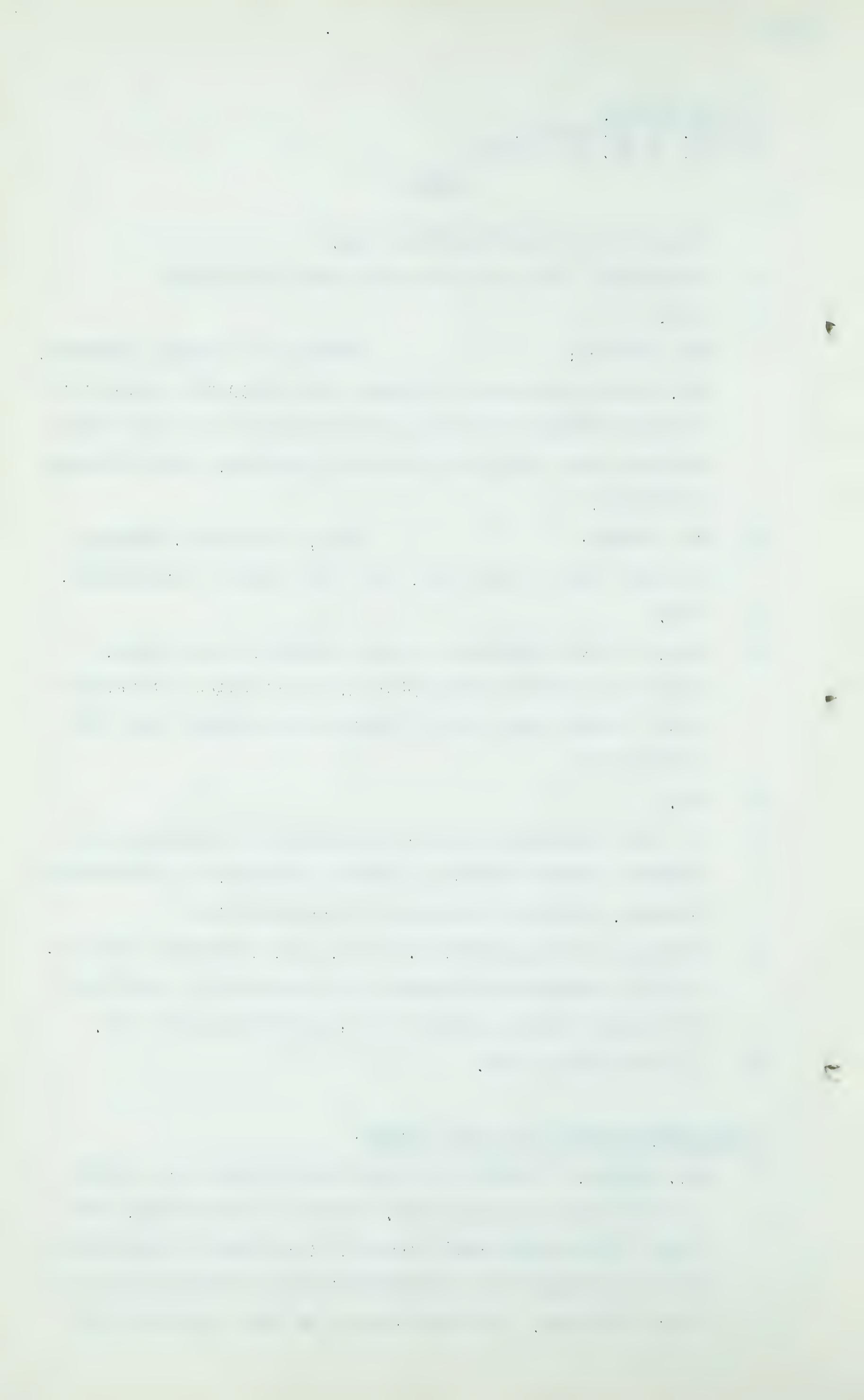
Q Is there anything in the concept that will minimize the impact of export demand on domestic prices, the Inter-Field concept, outside of savings in transportation?

A Savings in transportation? Well, yes, variations and savings in transportation where one line could be used where two might otherwise have to be constructed, and so on.

Q I think that is all.

CROSS-EXAMINATION BY MR. S.B. SMITH:

Q Mr. Milner, I wonder if I could talk to you for a minute or two about the subject Mr. Porter was discussing, and that is the contractual clause in the lease you quoted at the top of page 4 and the subject of the effectiveness of that provision. It does occur to me that there could be



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an additional consent given. I can quite follow your reasoning that if an unconditional consent is given, the function of the landlord is exhausted and he has no further right. I wonder if it does not appear that perhaps the landlord could get a conditional permit and would have the right to insist upon the conditions being complied with?

A Well, it would be a matter of contract, as I conceive it.

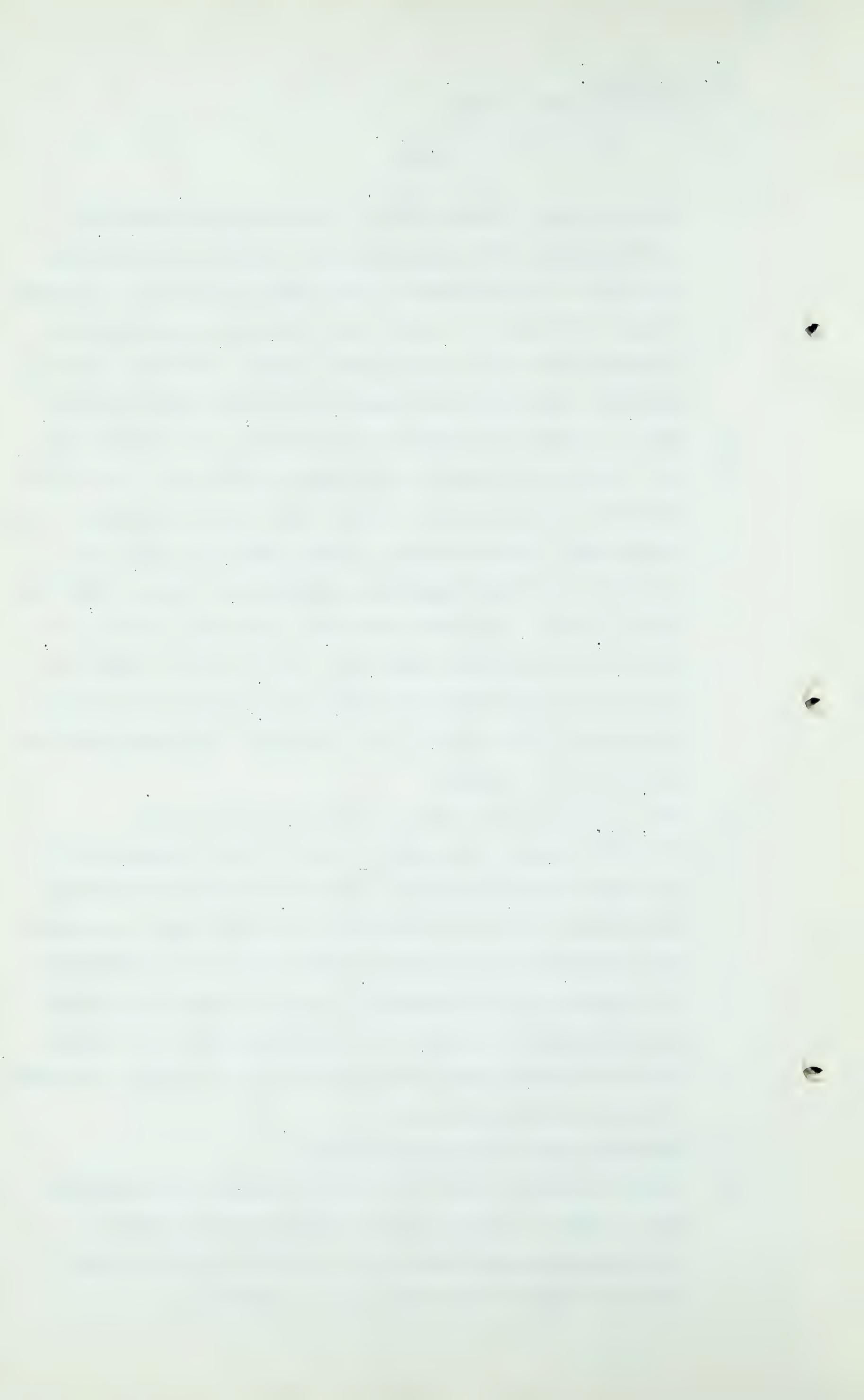
Q But if you could give a conditional permit and if the landlord was then entitled to insist upon the performance of the conditions, that would be a pretty effective method of control? I am not suggesting amending the lease. When the lessee comes to ask for permission under this clause, or consent, the landlord might say, "I will give consent to, subject to these terms and conditions, and if you agree to comply with those I will give consent." You could bind the lessee in that respect?

A Yes, subject to the law of forfeiture and so on.

Q Now, Mr. Milner, you question the validity of paragraph 9 and other provisions of the Act you have been discussing, but you are not, as I understand it, in any way advocating the abandonment of control in this field by the Provincial Government. On the contrary, it is to assist in reaching sound measures of control by the Province so as to ensure that the Province has and keeps control of its own resources, of which natural gas is one?

A Naturally that is the whole purpose.

Q Without trying to get into a constitutional discussion at all, I take it you feel that somewhere in the field of which we have been talking for some hours there is room constitutionally for control by the Province?



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A That is what I believe, yes.

Q Now, Mr. Milner, in the memorandum which was read by Mr. A.H. Williamson on behalf of Western Pipe Lines as the opening statement of that company, at page 5 appears the statement,

"If our views that the all-Canadian route to eastern Canada is not practical turns out to be correct, it is the view of this Company that the most satisfactory method ultimately to supply the Eastern Canadian market would be by an exchange arrangement between Canada and the U.S.A."

Would you be inclined to be in agreement with that view advanced by Mr. Williamson?

A Yes, I would think so. Of course, it is not a simple matter.

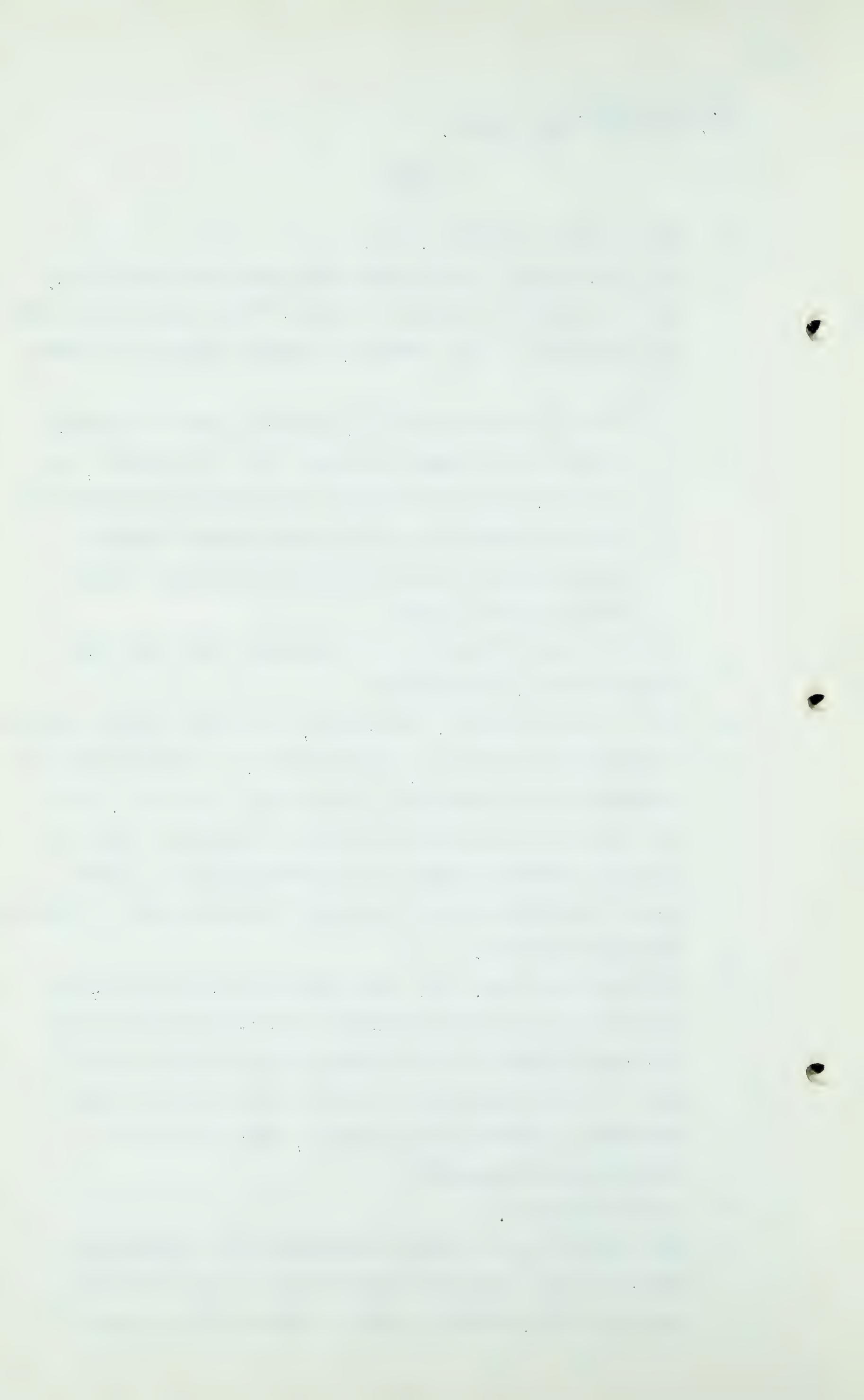
Q I understand it is not a simple matter, but eliminating the complication of mechanical difficulties in the way, would it be correct to say that you agree in principle that an exchange agreement might be an advantageous one to the people of Alberta and to the people in other parts of Canada?

A It might very well.

Q I am assuming that, say, we export gas from the Province of Alberta to a market adjacent to it and by reason of an exchange agreement there is imported into a more remote part of Canada gas from the United States which is more adjacent to Canada than our gas is, that would be an advantageous arrangement?

A I would think so.

Q And should you, in effect, accomplish that result that Alberta's gas, after the requirements of this Province were fulfilled, would be used in effect for the people



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of Canada?

A Yes, I would think it would have to be handled by a treaty and at the same time the Americans might be induced to remove their duty on oil and petro-chemical products.

Q Yes. This whole subject of reciprocal exchange of fuels is rather a live subject at the present time, isn't it?

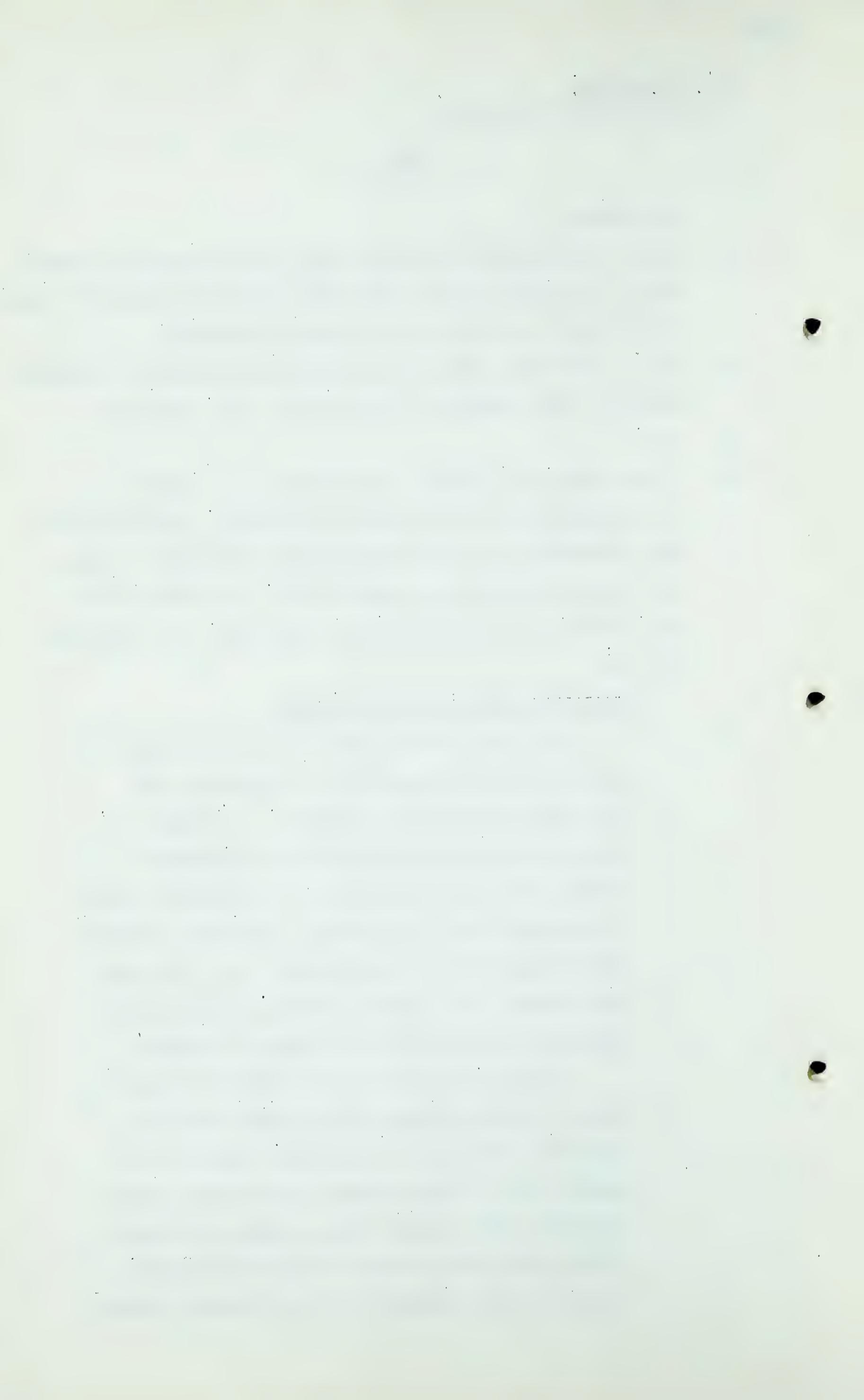
A Yes.

Q I have here, Mr. Milner, an excerpt from "A Brief of Recommendations to the Federal Government, resulting from the deliberations of the Eighth Mines Ministers' Conference held at Saskatoon, Saskatchewan, September 5th to 8th, 1951", and this particular paragraph, if I may read it, is:

"(2) Oil in the National Economy:

"In view of the needs of Canada as well as the critical international situation and the importance of all fuel supplies, including oil, being made available to the best advantage in Canada and the United States, the Ministers wish to recommend that the Federal Government consider the advisability of establishment of a National Fuel Council for Canada to study, plan, and co-ordinate the whole fuel situation in Canada.

"Further, in view of the strategic importance of Canadian crude oil reserves and the importance of their development, together with the fact that United States supplies are still providing this country with a large percentage of the petroleum products consumed in Canada, the Ministers recommend that the Federal Govern-



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"ment should seek a reciprocal agreement on petroleum and petroleum products with the United States in order to provide Canadian crude with additional outlets."

Is that about in effect what you were saying to me a few minutes ago?

A Except that we do not need any more councils in this country or everybody will be on the council.

Q Would it not probably be advisable to extend reciprocal arrangements of that kind to other fuels, except oil, such as to gas?

A Yes.

CROSS-EXAMINATION BY MR. PORTER:

Q I suppose that if there were an exchange, you would agree that the logical line would be for Western to develop its outlet and have an exchange back into Ontario?

A Now, which one is Western?

Q That is the one your grand-daddy is in.

A Oh, I see.

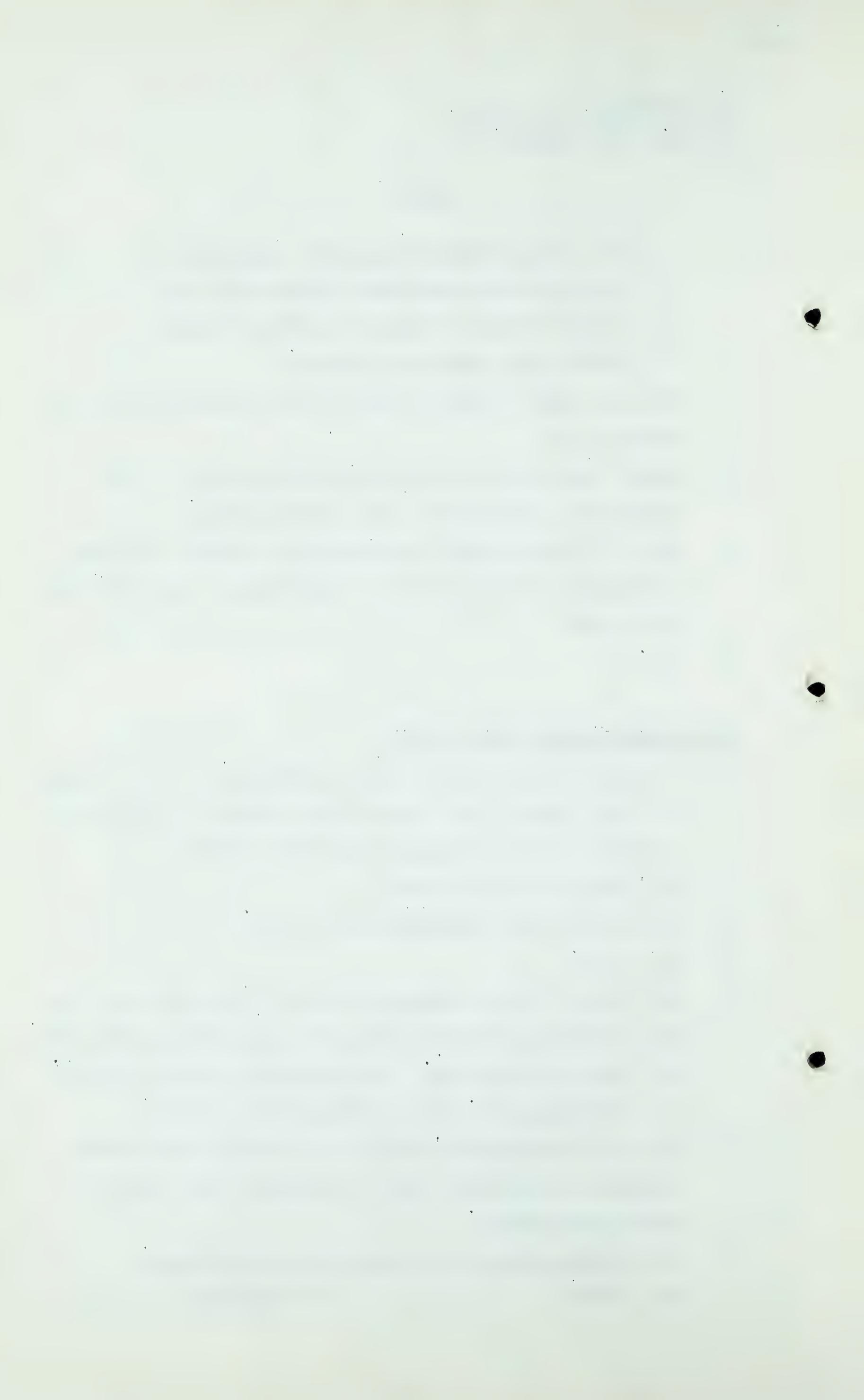
Q But I was a little concerned this morning when there was some shrinking reticence about the paternity on your part, but Western is the one. That would supply the prairies, as I understand it, and the Minneapolis country.

A Well, as I understand, Western is just a modest little flower in competition with the boys who want to go to Ontario and Quebec.

Q Your modesty about it is completely unexplained.

MR. NOLAN:

And unexpected.



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Q MR. PORTER: If you would rather see it go to the Coast?

A No.

CROSS-EXAMINATION BY MR. McDONALD:

Q Mr. Milner, I just wonder if you could tell me if the freehold leases, the freehold mineral rights, in Alberta are held mainly south of Township 62?

A Which is Township 62?

Q About 20 or 30 miles north of Edmonton, 50 miles north of Edmonton?

A Yes. I would think further south than that, wouldn't it?

Q Well, that is just generally north of Edmonton. What I had in mind was that the Westcoast Company has submitted evidence that there are sources of supply perhaps in the Peace River area where the minerals rights are subject to the Crown.

A That is a later settlement.

Q Outside of possibly Indian lands, they are all Crown lands?

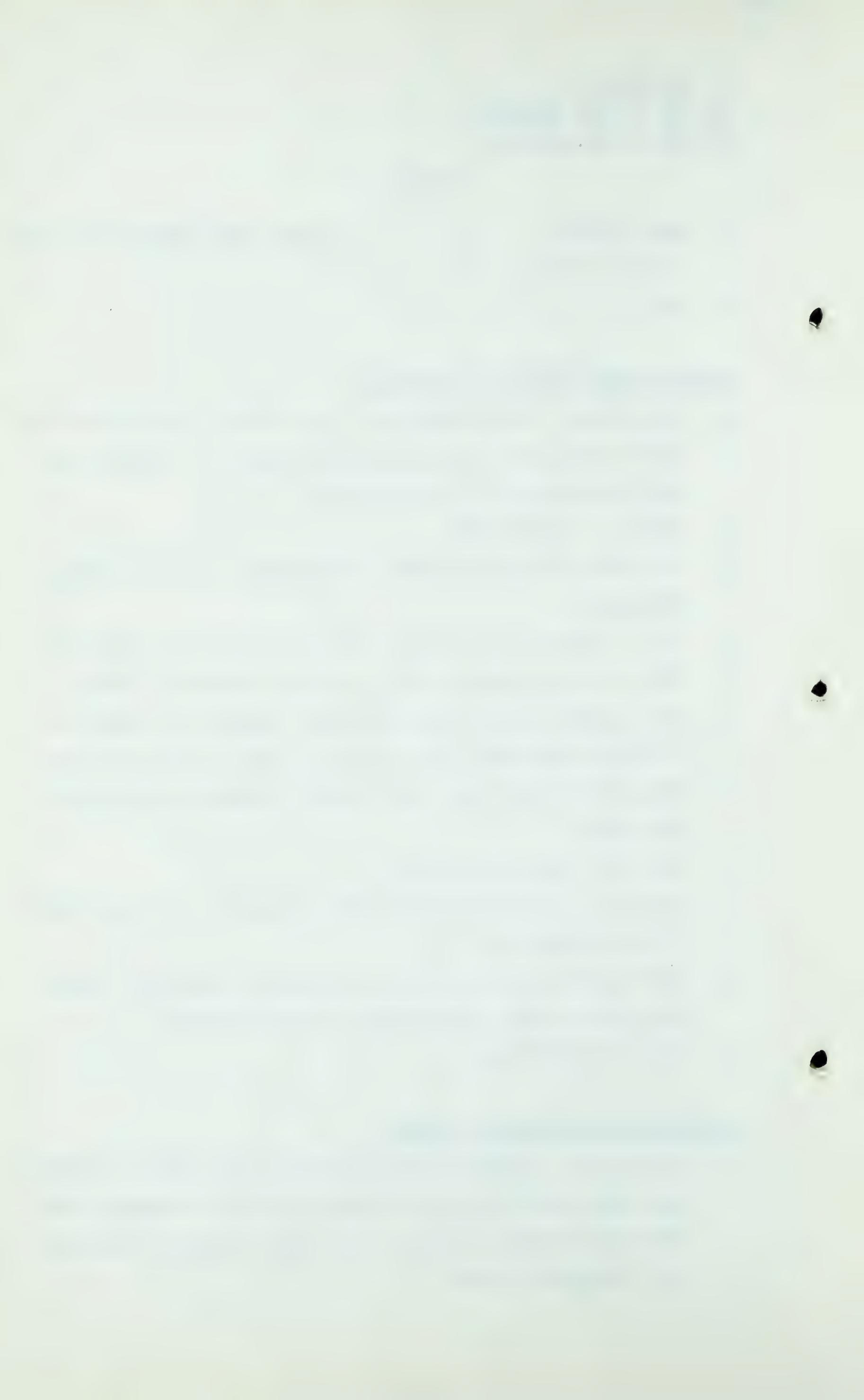
A I would think so.

Q And therefore the question of control of those gas rights by contract may be applicable to those points?

A Might very well be.

CROSS-EXAMINATION BY MR. BREDIN:

Q Mr. Milner, assuming Canadian Western were able to purchase gas from fields adjacent to the city, do you suggest that Inter-Field would be able to sell gas to Canadian Western at a comparable price?



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A Well, that is rather a difficult question because the word "adjacent" comes in there and how those fields are treated. I mean, suppose the McKidd well is the beginning of a field, that is close to Calgary. There might be ample gas there if it were not drained off for some other purpose. If it was not drained off for some other purpose, Inter-Field or something like that, it would serve a very useful purpose.

Q The result of the Inter-Field project would be to obtain an average cost which would in any event be much larger than the cost of adjacent fields?

A No. Just depends how much control you have over the adjacent field, how much control Calgary Gas Company would have over the adjacent fields.

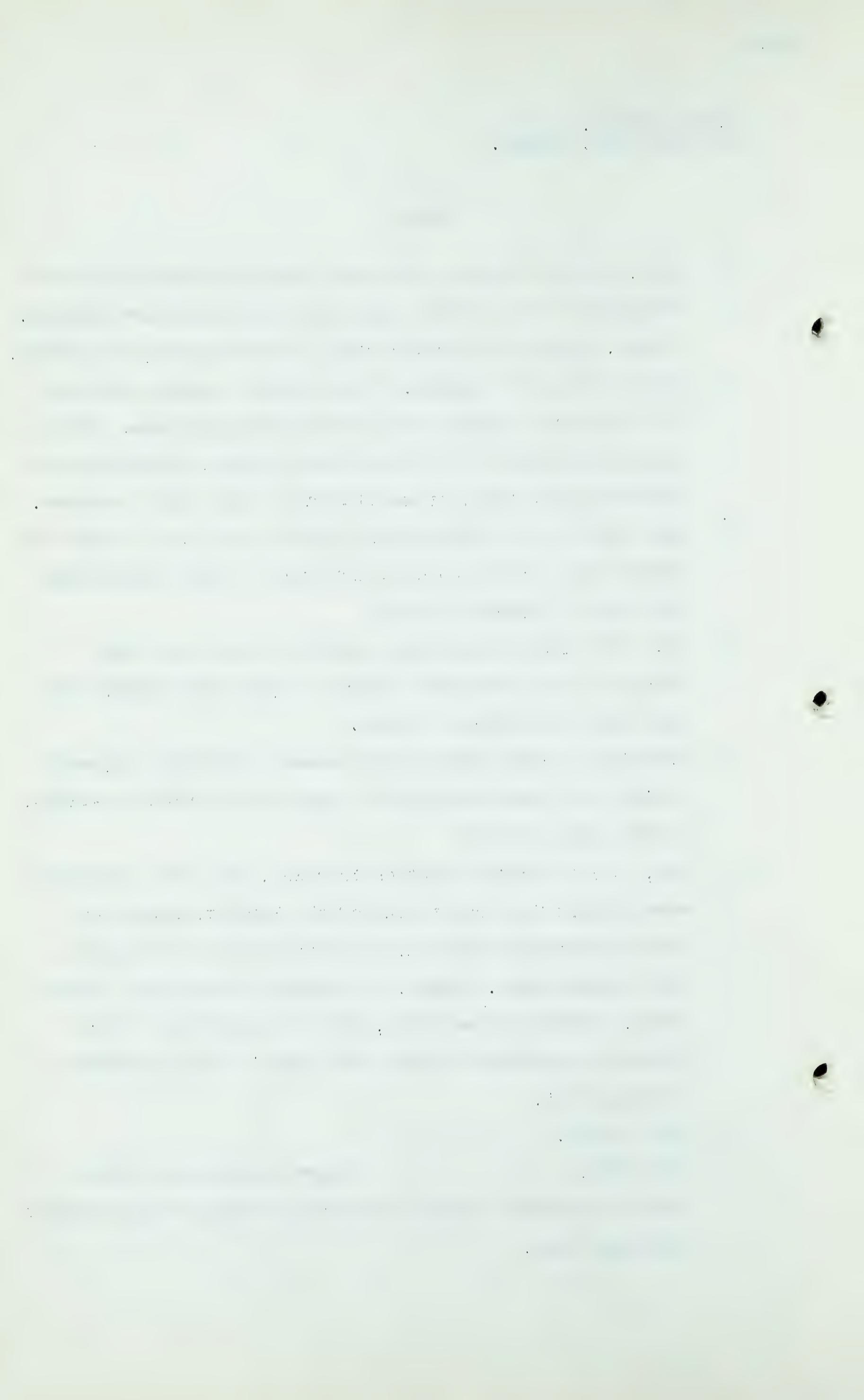
Q Assuming it could buy the full demand from those adjacent fields, the result would be a higher cost from Inter-Field, is that not correct?

A Yes, if you put the question this way, that if a big field were brought in close to one of the large transmission lines of Canadian Western, then Inter-Field could hardly play a part there. Again, if Canadian Western got control of it, control of the field, but you might have a very different condition if the field came in and an exporter controlled it.

Q That is all.

Q MR. STEER: There is nothing in this brief to prevent Canadian Western acquiring the gas supply?

A Nothing at all.



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Cr. Ex. by Mr. H.J. MacDONALD.

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CROSS-EXAMINATION BY MR. H.J. MacDONALD:

Q Mr. Milner, you spoke earlier more as an exporter when you were being questioned than as an Albertan. Now, speaking as an Albertan, I judge that you would favour supplying all the gas that is required for industrial needs in Alberta before the gas would be exported?

A Yes.

Q And you mentioned some figure in connection with the use or consumption of gas in the United States.

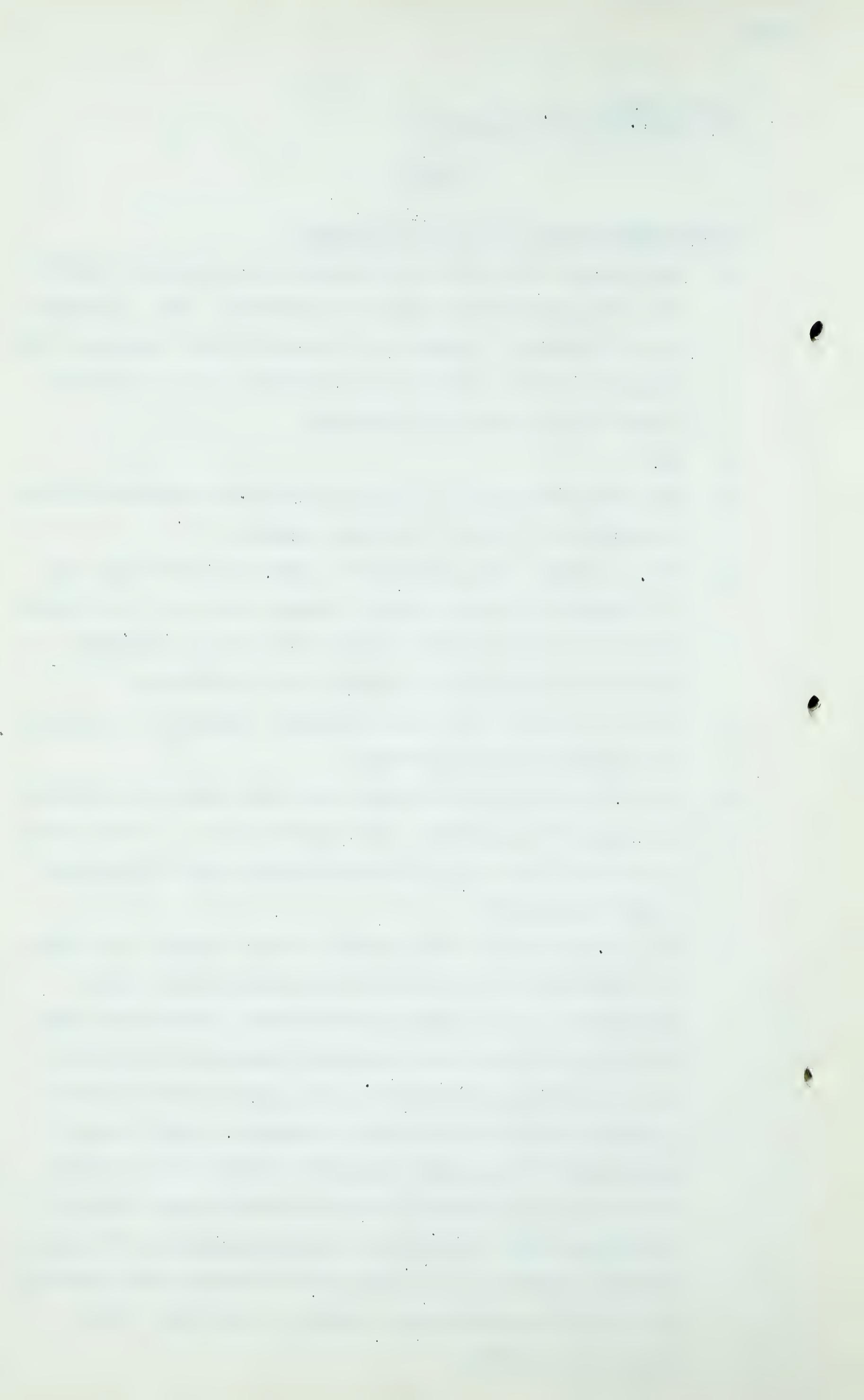
A Yes. I think I said $4\frac{1}{2}$ times as much industrial gas used as domestic gas in the United States, which was a different pattern entirely in this Province where the consumption of domestic is substantially higher than industrial.

Q Then the growth of the petro-chemical industries in Alberta would change that proportion?

A Yes, if they were established here they would very greatly.

Q And that would mean that the estimates in the interim finding of the Board for the 30-year period would be substantially increased?

A Yes. That is the reason, really, that I suggest the block sale business so that you are not committed for large amounts for a long period of time until you know what gas is going to develop here and what industries are going to be established, because five years ago the idea of these industries being established in Alberta in this period of time would have appeared fantastic. Now, we do not know what is going to happen in the next five years, no one in this room knows. There may be real development of a petro-chemical industry, and if the American duties were lowered, that might be accelerated, lowered or removed, then we would have a market.



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Q And the estimate of 4.2 and 3.3 trillion might be increased by 50% or more, with the advent of the petro-chemical industry?

A Yes, it might.

Q Now, just one other question, Mr. Milner. It was your opinion that the Gas Resources Preservation Act was wholly bad, and that any permit issued by this Board would be invalid. Would it be wise that reference to the Courts be made to ascertain the validity of that legislation under The Constitutional Questions Act before the Board issued a permit?

A Well, I think that is a matter of Governmental policy. The Government will be guided, no doubt, by the advice of this Board, and by the advice of the Crown officers.

Q And it would appear to make commonsense that the validity of the legislation should be established before proceeding?

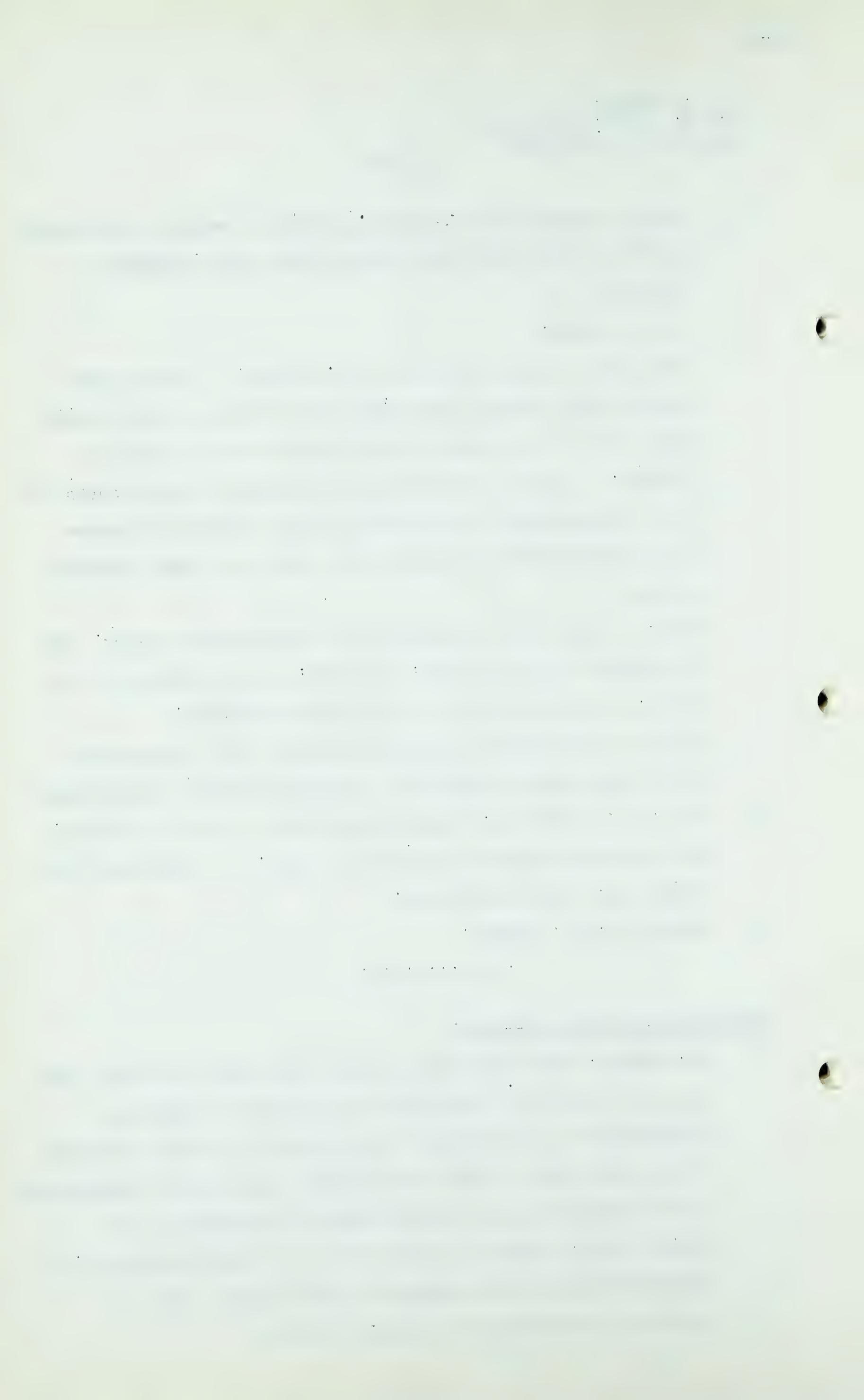
A Well, Mr. MacDonald, I was in politics once and I got out, and I am not going to get into it again. I should not say I got out, I got kicked out.

Q Thank you, Mr. Milner.

.....

EXAMINATION BY THE CHAIRMAN:

Q Mr. Milner, what proportion do you think that we should aim at in the matter of industrial consumption to domestic consumption? I notice from the estimates that were prepared by the Board that in 1951 we estimate the domestic consumption at 20 billion feet and the industrial consumption at 19 billion feet. For the 30 years that the Board estimated, we estimated domestic consumption at 873 billion, and the industrial consumption at 1434.5 billion.



H. R. Milner,
Exam. by The Chairman

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A Well, if the Board would like me - these are Provincial figures, of course.

Q These are estimates of the requirements.

A As a matter of curiosity I asked for the Canadian Western and the Northwestern figures for the year ending November 30th, 1951, for the 12 months ending then. Would you like to have those?

Q Well, we thought our figures were pretty close to those.

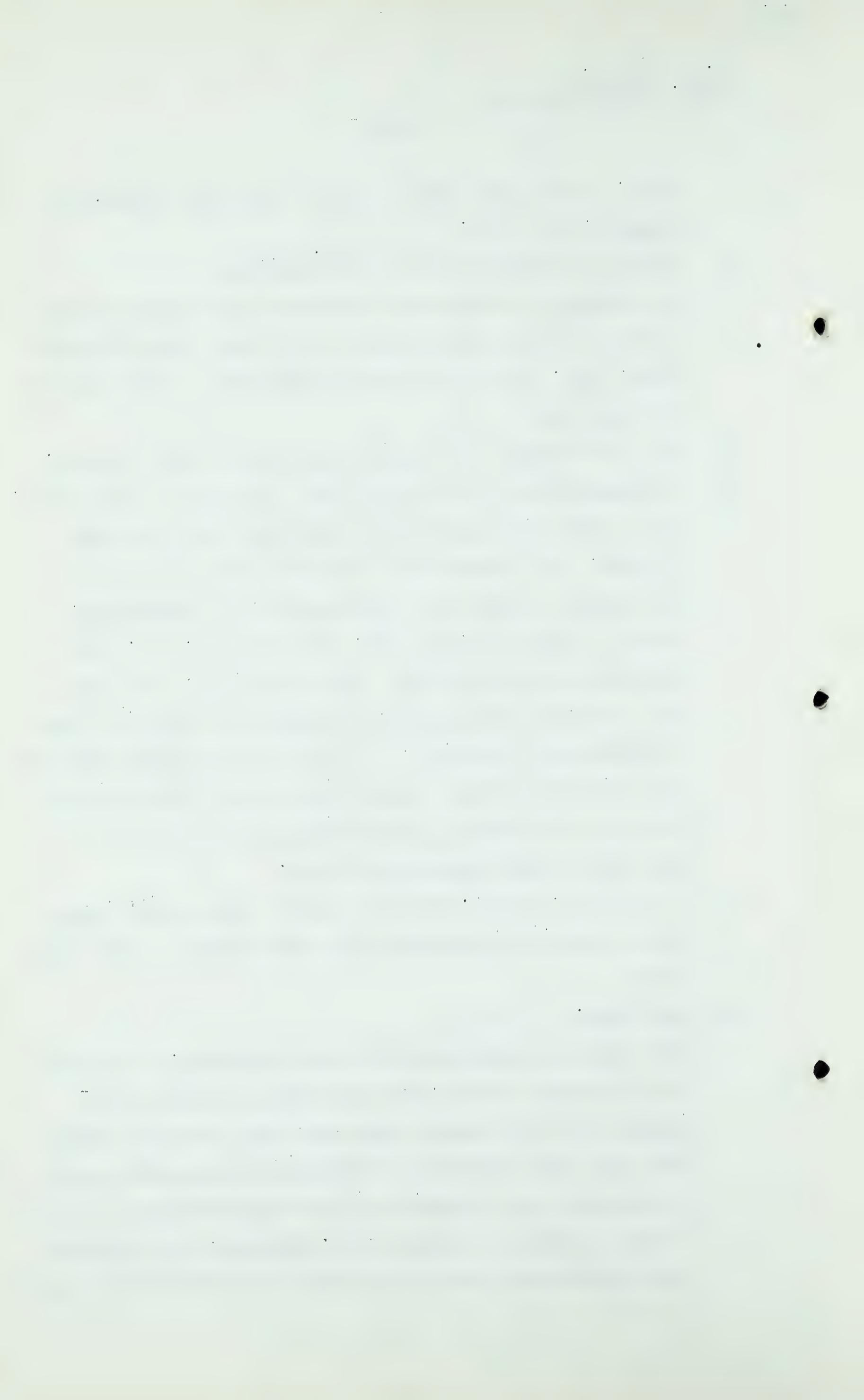
A I checked this a little while ago, and they are very close, but in this particular case I would give you the round figures. The domestic for those 12 months in the case of Canadian Western was 9 million 508, the commercial, which is also a hearing load, was 5 million, 651. The industrial was 11 million. And in Edmonton, the figures are 9 million 839 domestic, 7 million 237 commercial and 6 million 427 industrial. So that you see by that that the industrial use of gas in this city is very substantially more than in Edmonton, substantially more, and on a percentage basis substantially more.

Q I think, Mr. Milner, that the Board's figures with regard to the domestic consumption are fairly close to those estimates?

A Very near.

Q With regard to Canadian Western and Northwest. But, say, for the 30-year period, the Board has estimated a consumption at the figures I gave you, and do you not think that is a fair proportion of domestic to commercial, and in line with the consumption in the United States just now?

A I hate to venture an opinion, Mr. Chairman. The change in this Province has been so fantastic over the last few years



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that you really cannot make head nor tail of what is going to happen. I know there has been some talk about two new industries, and they are most certainly going to take, to come here and use a great deal of gas, and together they will use, I think, something over 10 billion. And then you have the chemical plants, the Canadian Chemical, using a very large quantities of gas. Now, if the duty into the States were removed from petro-chemical products, that might accelerate development in this Province beyond our conception. I would like to be able to foresee five years and see what is going to happen. I think that any normal growth, any reasonably normal growth, your figures are sound, and are close, as I remember them, to those estimated by the Gas Company people, but, then, again, you cannot tell.

Q All right, thanks, Mr. Milner. That will be all.

A Thank you.

MR. MAHAFFY: Mr. Chairman, there are one or two points arising out of the examination that I would like to clear up with Mr. Milner.

THE CHAIRMAN: Yes.

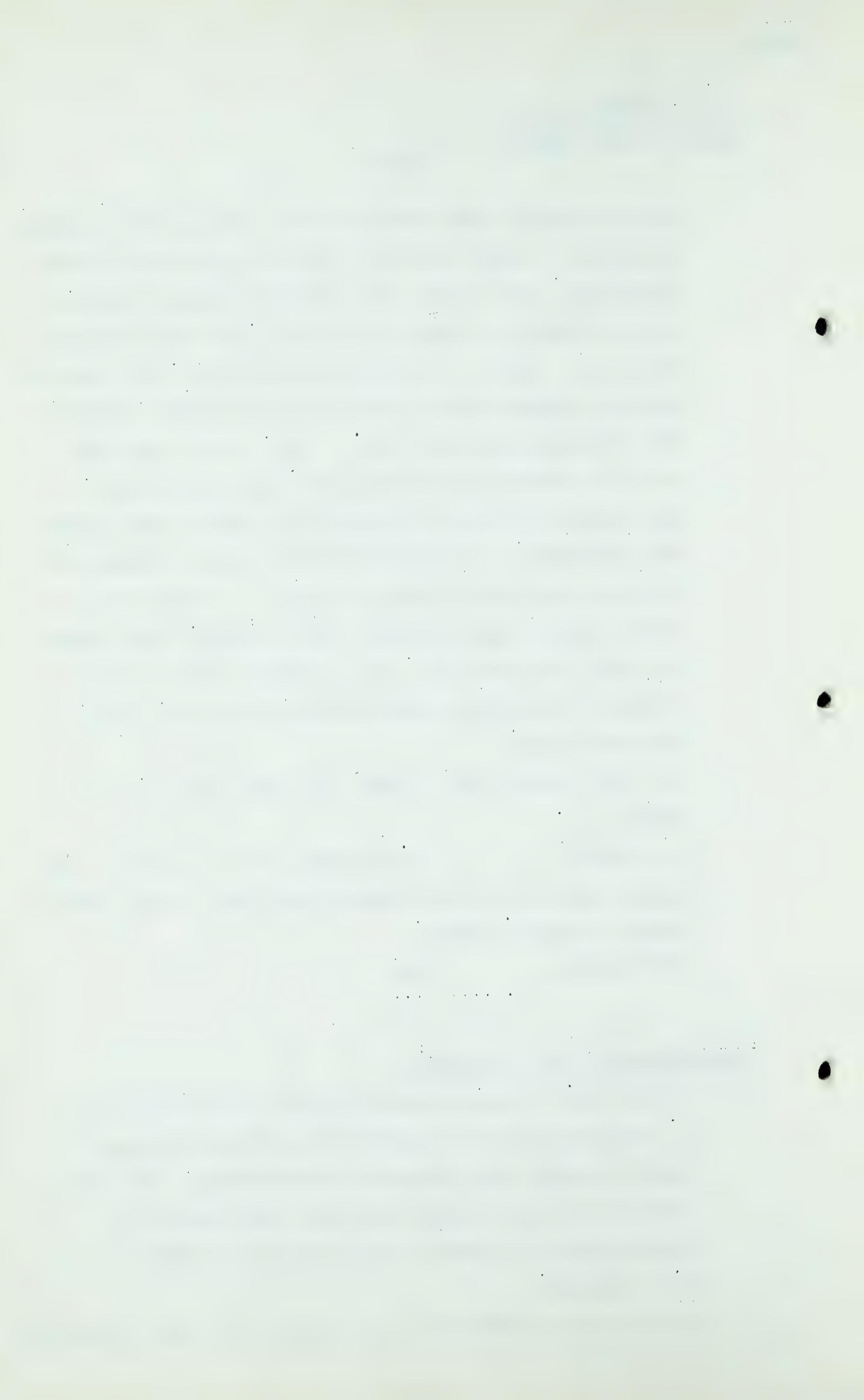
.....

RE-EXAMINATION BY MR. MAHAFFY:

Q I think, Mr. Milner, you have made it clear enough now to Mr. MacDonald that the figures you used this morning, I think, perhaps, might have been misunderstood. You said that in the United States four and a half times the amount of gas was used in industry as in Canada?

A No, I am sorry.

Q But that was intended to be the information that you gave to



H. R. Milner,
Re.Ex. by Mr.Mahaffy

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Mr. MacDonald just now, isn't that right?

A Yes.

Q Now, in answering my learned friend, Mr. Nolan, this morning, Mr. Milner, when he was asking you some questions with respect to the use to be made of dry gas fields, and I think he suggested to you that those fields might conceivably be used only for the purpose of supplying peak load requirements, and, I think, as I understood your discussion, it was just left there. I wonder if you would enlarge on that a bit in view of the information contained in the brief, as to how you think the dry gas fields would be treated under those circumstances.

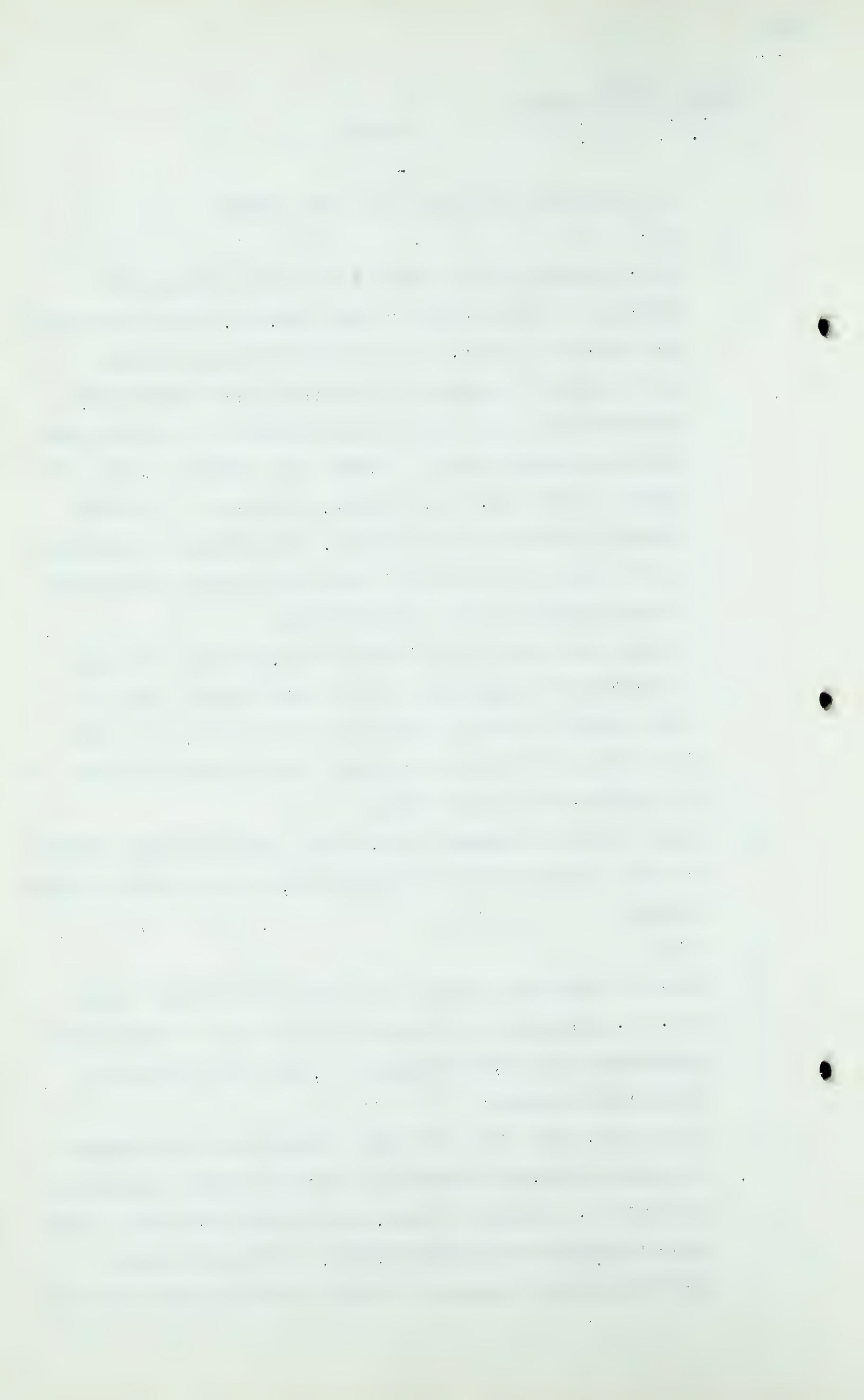
A Well, my idea was that the dry gas fields should be used essentially to supplement the wet gas fields, and that there should be some pooling of revenue to keep the dry gas fields, but that the dry gas fields should be looked on as prospective storage tanks.

Q And I think you suggest in the brief, and you make reference as does the Board in its Interim Order, to the Turner Valley scheme?

A Yes.

Q Now, Mr. Nolan also asked you a question towards the end of his examination, to this effect, but not in these words, when would you advocate export? Could you enlarge on that a bit, please?

A I will say this, that if I were offered the same handsome fee that Mr. Nolan is getting, I would be quite prepared to advocate it tomorrow in Court, but, aside from that, I have never opposed nor advocated export, as far as I know. I am certainly not opposed to export as long as the Board has



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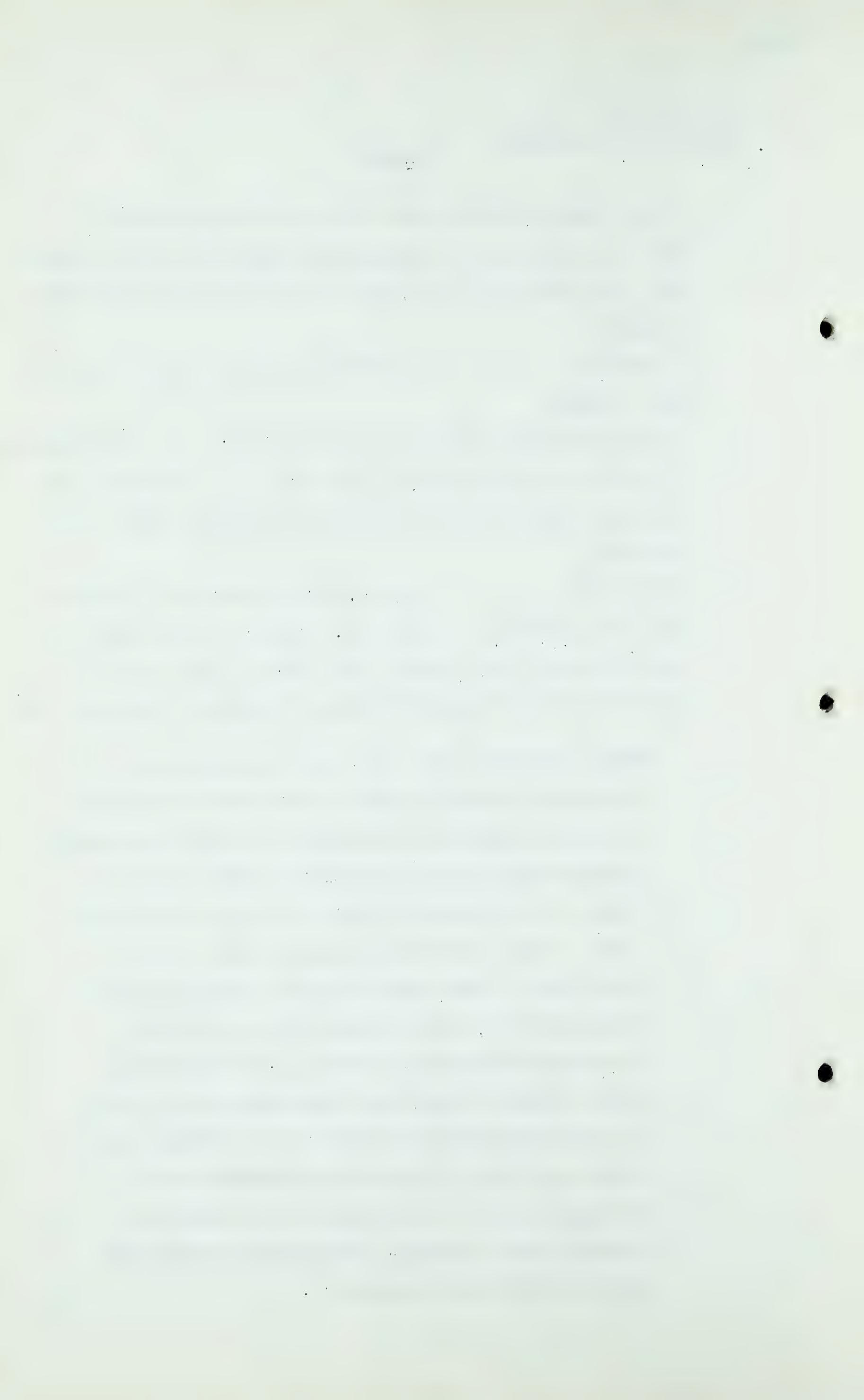
a free hand to protect the interests of the Province.
What I am fearful of is permitting export and then finding
that the teeth have been taken out of any Order that might
be made.

MR. PORTER: You would be in bad shape if Western
got a permit.

A , I think with that brief we really advocate, as an alternative
to failure of legislation, or if there is a failure, that
the whole thing should be handled by contract which can be
enforced.

Q MR. MAHAFFY: Now, Mr. Porter spoke to you about
price, Mr. Milner, and also Mr. Bredin, who naturally is
worrying about price, and I would like to read to you
Section 14 of the proposed statute appearing in Exhibit 123.

"Every licensee shall sell such quantities of
gas over such period and on such terms of delivery
as may be ordered by the Board to any public utility
distributing gas for consumption within the Pro-
vince at such price or prices as may be fixed from
time to time by the Board, which price or prices
shall bear a just relationship to present prices
being paid for gas by such public utility and
in fixing such price or prices, the Board shall
not be bound to take into consideration the fact
or the possibility that such gas or similar gas
has been or may be sold to a purchaser to be
transported out of the Province at a price or
prices lower or higher than existing or proposed
prices within the Province."



H. R. Milner,
Re.Ex. by Mr. Mahaffy

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Does that section express your thoughts?

A Yes.

Q With respect to the price situation?

A Yes.

Q Insofar as Provincial supplies are concerned?

A Yes.

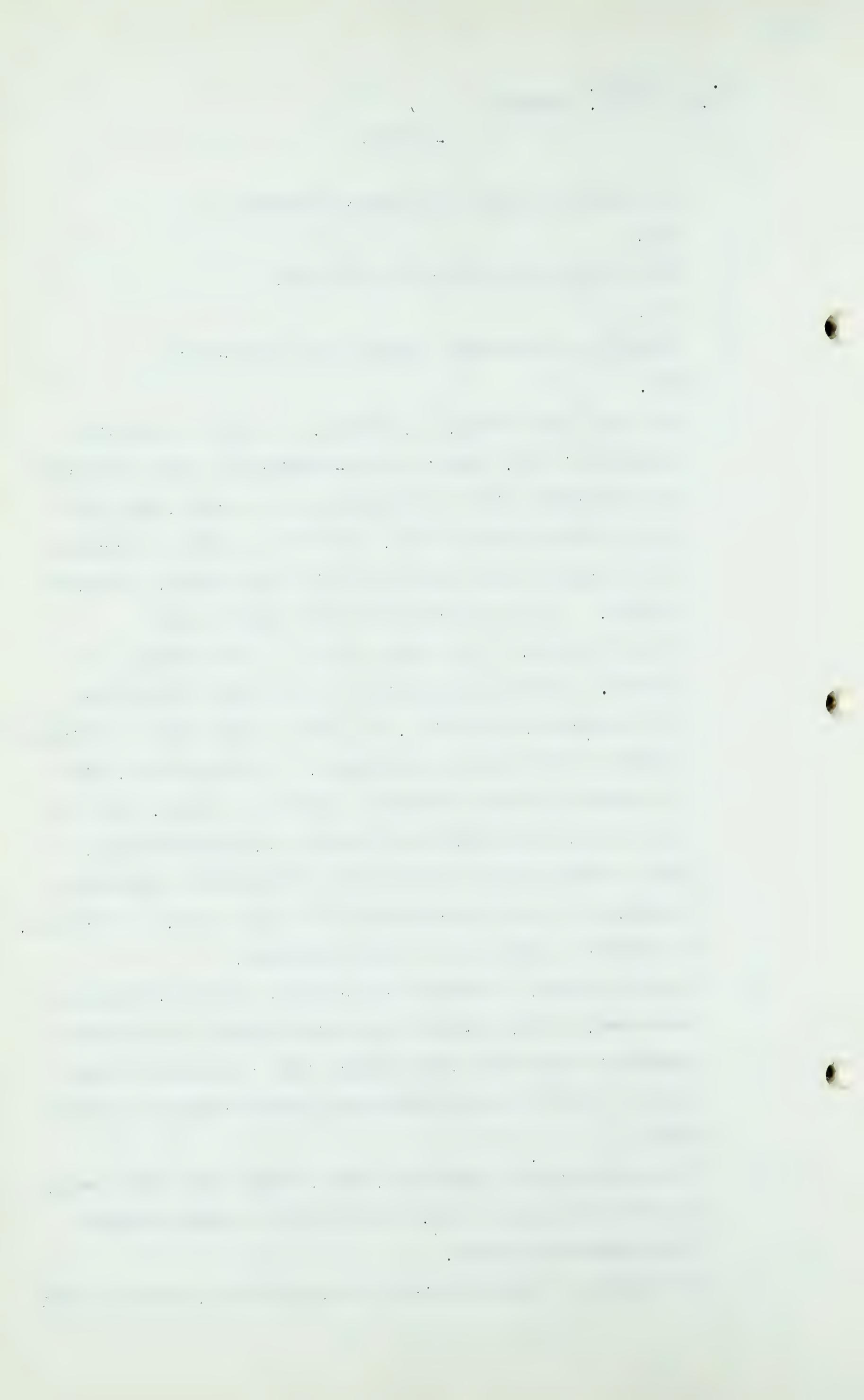
Q Just one other thing, Mr. Milner. I think it was also suggested in Mr. Nolan's cross-examination that the Inter-field proposal might be harmful to a producer, say Gulf in the Pincher Creek field, and that it might be harmful to an exporter such as Mr. Nolan's own company, Northwest Natural. Do you agree with those suggestions?

A No, not at all. I do not see how it could possibly be harmful. The only suggestion I have heard advanced or any substantial objection, is that it might make the financing of the export line more difficult; in other words, with the export line not owning the gathering system, that it would be more difficult to finance, or, alternatively, that it would be more difficult to finance the gathering system, if it were independent of the pipe line. Of course, my opinion is that that is pure nonsense.

Q In other words, as far as the proposal of Inter-field is concerned, the Inter-field gathering system, or whatever company it might be, would simply take the place in that case of the Provincial gathering system proposed by Northwest?

A Yes, and financed separately, and perhaps some folks would not have the same profit, but it would be split amongst the fraternity instead.

Q And would it be prejudicial to any producers, such as Gulf?



E.G.Trostel,
Dir. Ex. by Mr. Porter

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A Not a bit.

Q That is all, thanks.

THE CHAIRMAN: Thank you, Mr. Milner.

MR. PORTER: Mr. Trostel is available with those figures, Mr. Chairman, if this is the appropriate time.

MR. STEER: If my learned friend will pardon me, Dr. Sutherland is here and would like to get away as soon as possible, and his evidence would only take about ten minutes.

MR. PORTER: Take your choice, sir.

THE CHAIRMAN: Mr. Trostel is anxious to get away too.

MR. PORTER: Yes, and he is headed south where he has some other work to do. However, I do not think that ten minutes would make any difference. It is just to give those figures with regard to the line which he went over last night.

.....

EVERETT G. TROSTEL, recalled, already

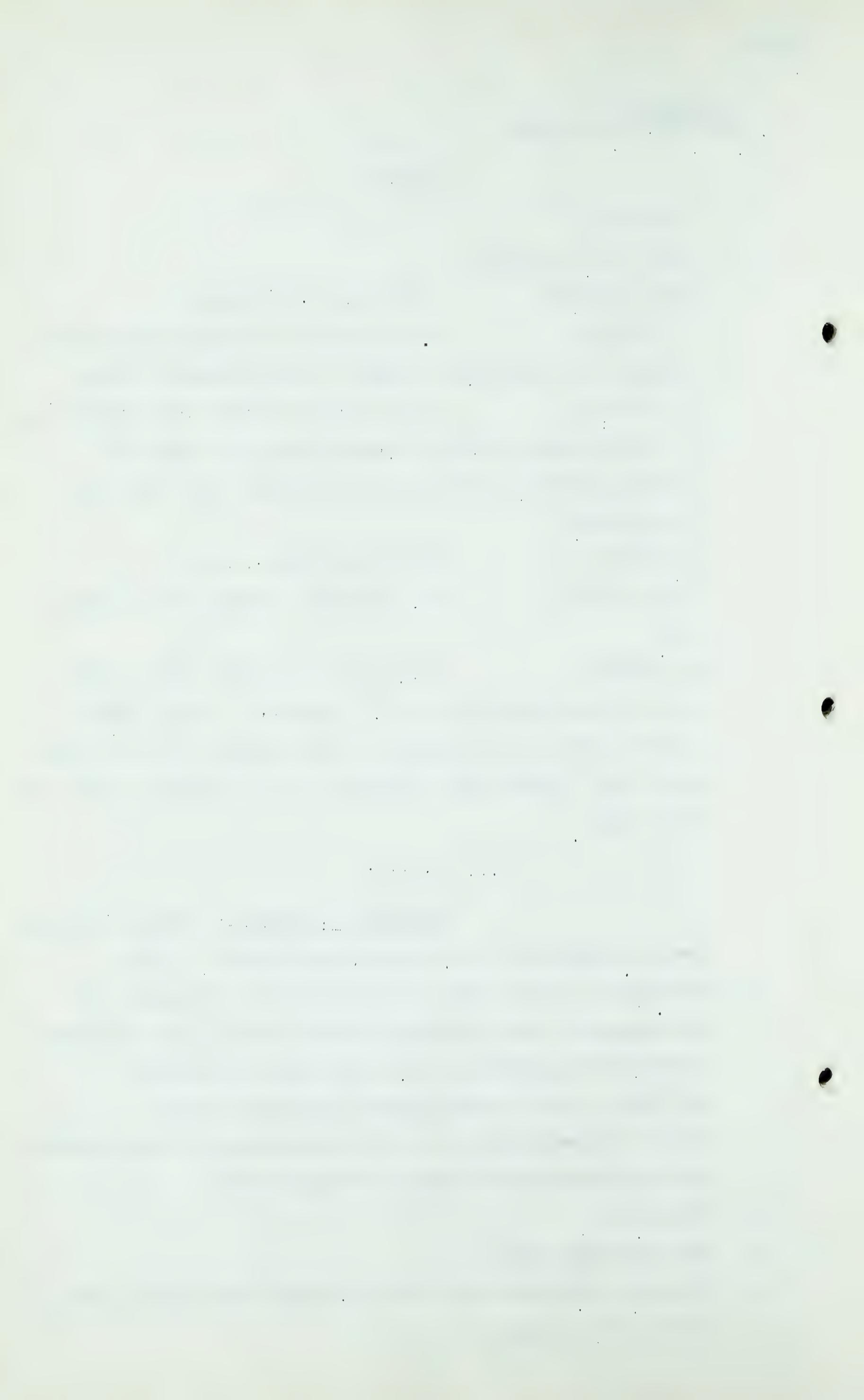
sworn, examined by Mr. Porter, testified as follows:-

Q Mr. Trostel, at the close of your evidence yesterday, it was suggested that you should figure out the cost of transporting the quantities of gas shown in your Exhibit 5 on Table 1 that it was proposed under that scheme should ultimately come to the Calgary system of the Canadian Western from Pincher Creek and Pakowki Lake?

A Yes, sir.

Q Have you done that?

A Yes, sir. With the help of Mr. Shattuck last night I made those calculations.



E. G. Trostel,
Dir. Ex. by Mr. Porter

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Q Now, assuming that you are moving over the period of years shown in Exhibit, in your Exhibit 5, I do not know its number in the record.

A 118.

Q 118?

A Yes.

Q The volumes that will be drawn for the Canadian Western system from Pincher Creek and Pakowki Lake, on the figures you have, what would it cost per thousand to move that gas?

A Approximately 4 $\frac{3}{4}$ cents.

Q Now, does that take into consideration any use of the existing facilities of Canadian Western running from Calgary to Foremost?

A No, sir. This is a new facility that was planned.

Q A new facility?

A Yes. Bow Island would continue, but that is as far as the Pakowki gas and Pincher Creek gas is concerned.

Q And does not take into account any saving made by the Bow Island line?

A No, sir.

Q Which is 40 years old?

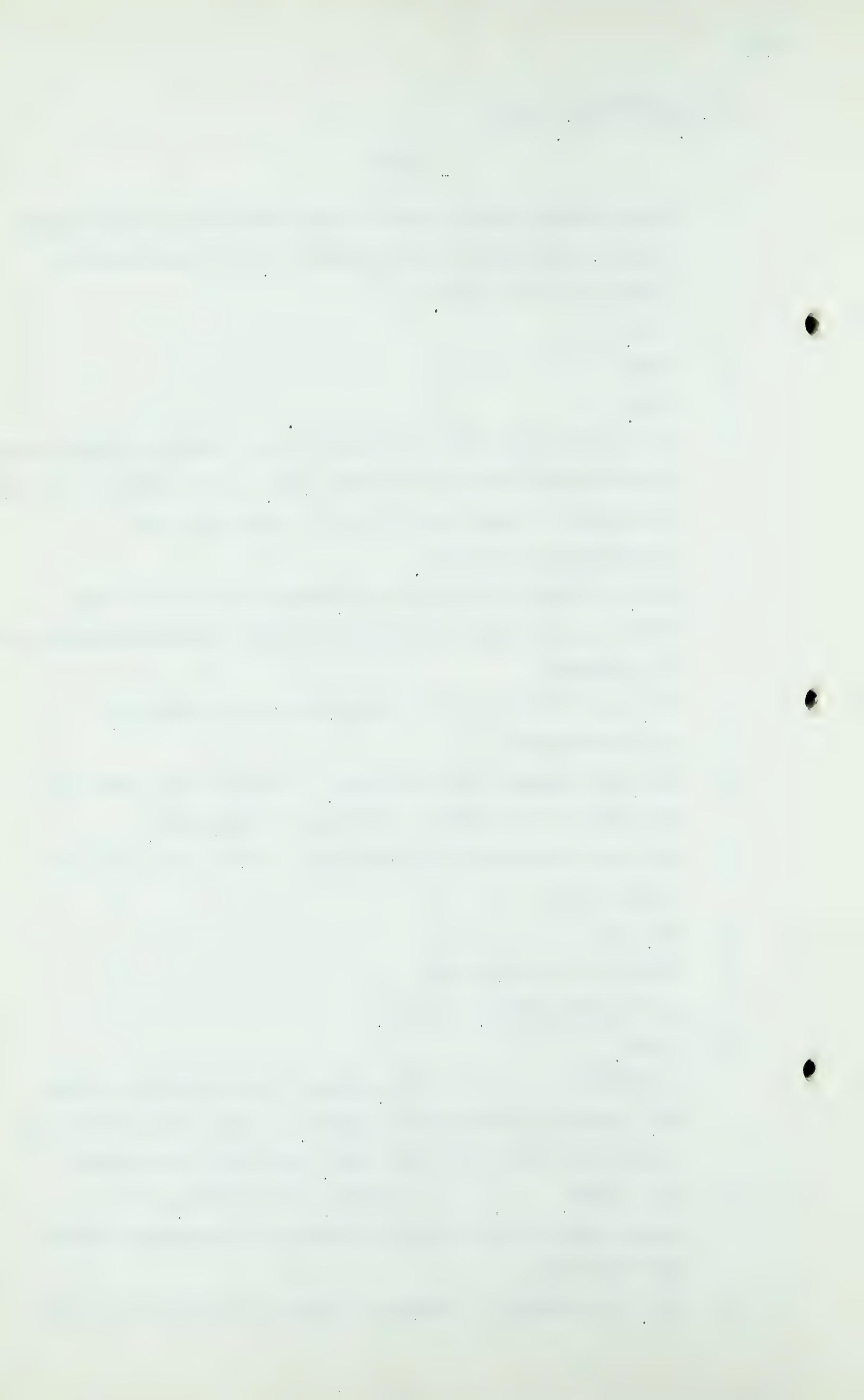
A I understand that, yes sir.

Q I see.

MR. PORTER: Now, would the Board care to have Mr. Trostel go over those figures, or just file them? He could file them or go over them, whichever you choose?

Q DR. GOVIER: I wonder, Mr. Trostel, if you would describe the facilities that you contemplate would be required?

A Yes. We planned a design as follows, 80 miles of 18-inch



E. G. Trostel,
Dir. Ex. by Mr. Porter.

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from the Pakowki Lake area to the Diamond City junction, and 120 miles of 20-inch line from Diamond City on, with a compression of 100 horsepower brake compression at the Diamond City junction to be installed for operation in the 17th year.

Q And the proposed Trans-Canada line from Pincher Creek would carry the gas for Canadian Western to Diamond City, is that correct?

A That is correct.

Q Does this assume that the owners of the gas in the Pakowki Lake field would supply the gas at 750 pounds line pressure? A Approximately that, yes sir.

Q MR. PORTER: Now, that compressor station that goes into the 17th year, is put in at that time to take care of the pressure deficiency, isn't it?

A And also to take care of some slight compression required for the gas coming from Pincher Creek as well.

THE CHAIRMAN: I wonder if the details could be filed?

MR. PORTER: Yes. With the short time that the work had to be done in, it was not possible to get the work into Exhibit form.

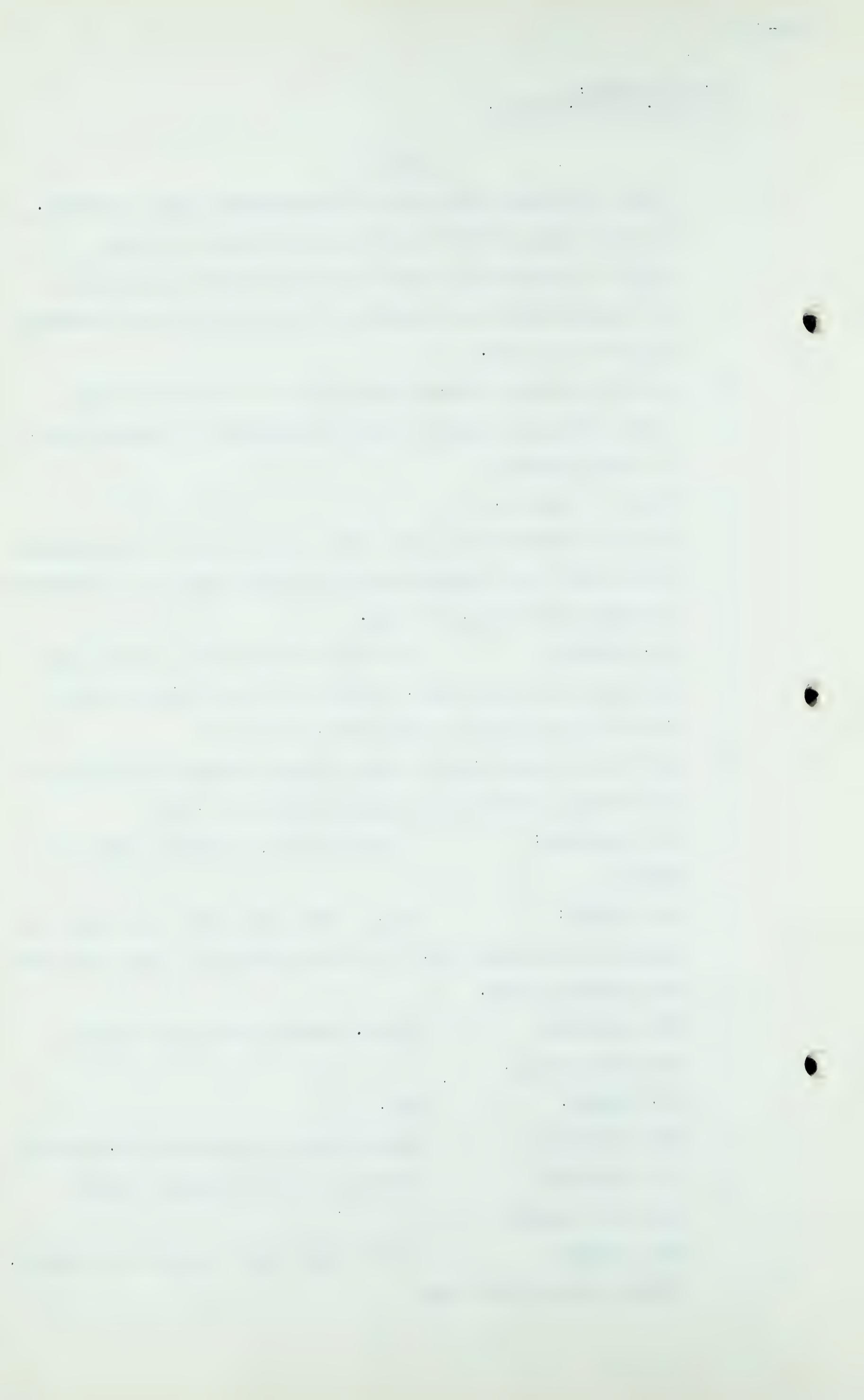
THE CHAIRMAN: If Mr. Trostel will just send us his calculation.

MR. PORTER: Yes.

THE CHAIRMAN: Anybody wish to question Mr. Trostel?

MR. McDONALD: Could we have the details typed into the record?

MR. PORTER: We will make some copies for counsel, if they would like them.



E.G.Trostel,
Dir. Ex. by Mr. Porter

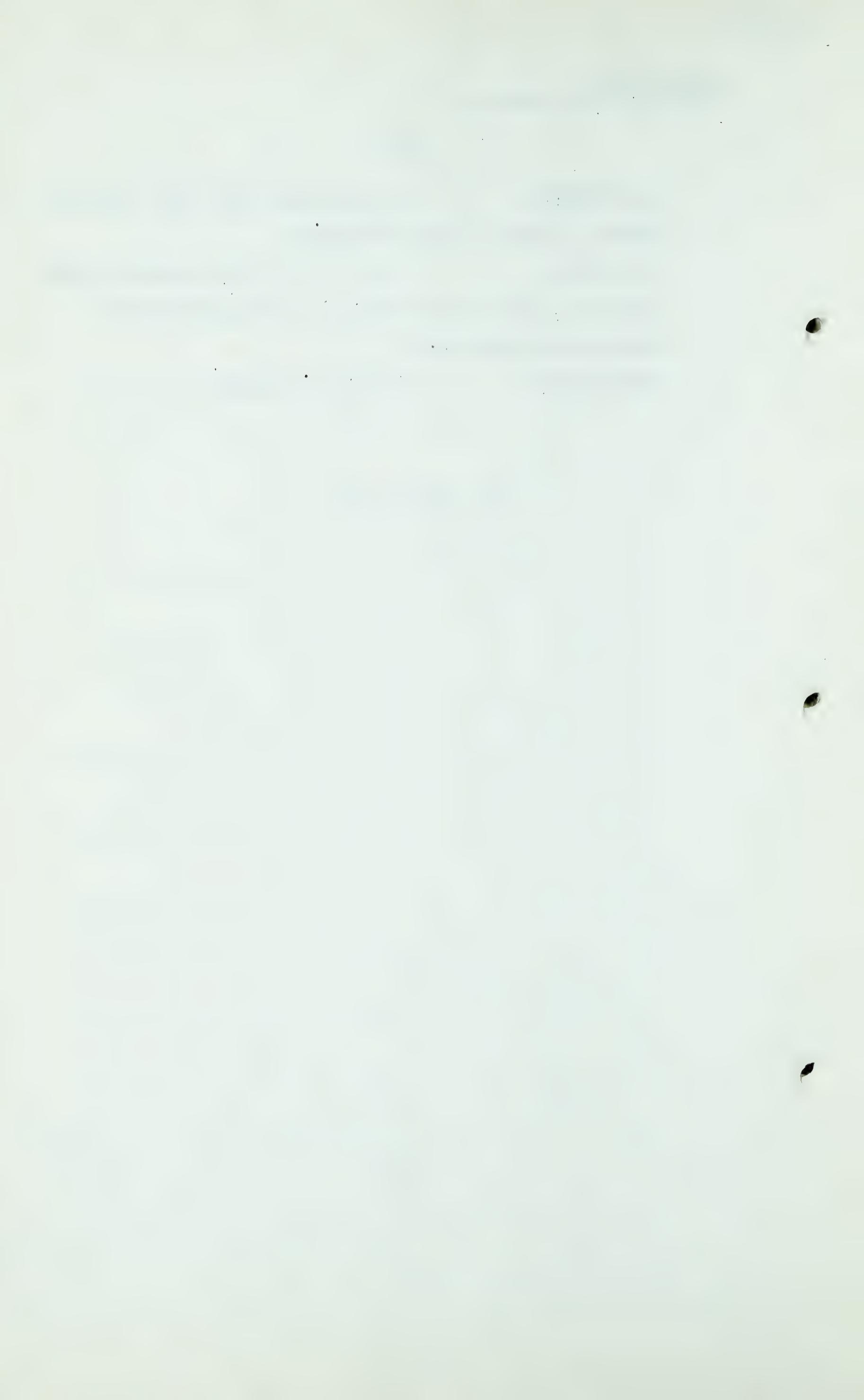
- 3401 -

MR. McDONALD: It would not take more than five minutes to put it into the record.

MR. PORTER: Let us put it into exhibit form, and we can give it to counsel, and they will have something to work with.

THE CHAIRMAN: Thanks, Mr.Trostel.

(Go to page 3402)



B. P. Sutherland,
Dir. Ex. by Mr. Steer.

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BRIAN PORTER SUTHERLAND, recalled,
having already been duly sworn, examined by Mr. Steer,
testified as follows:-

Q You appeared previously and gave evidence on behalf of the Consolidated Mining & Smelting Company, Doctor?

A Yes, sir.

Q In the course of that evidence there was some slight reference to the uses that could be made of residue gas which contains very largely methane, am I right in that?

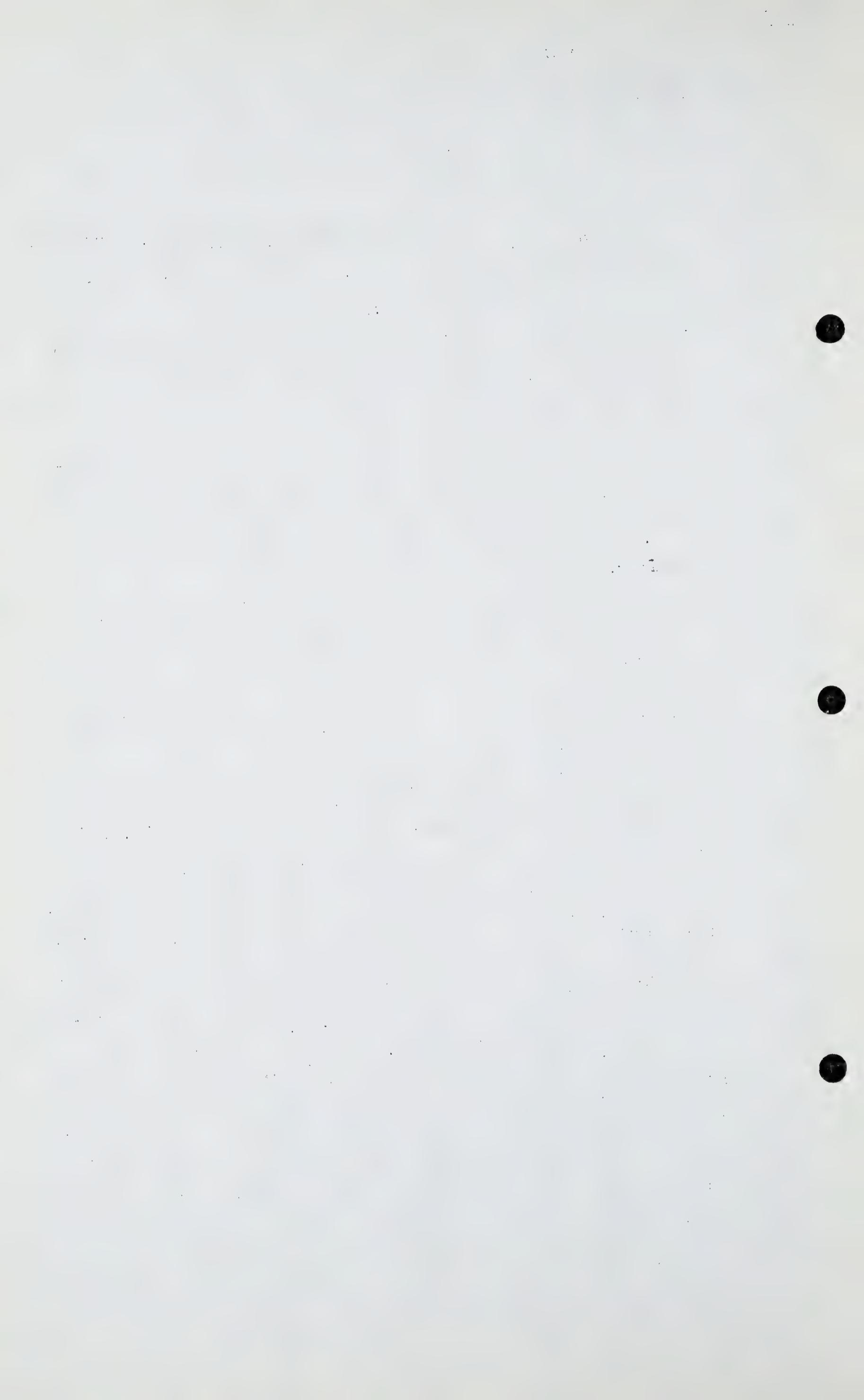
A That is right.

Q It is that gas that is used by the Consolidated Company in the Nitrogen Plant here in Calgary?

A That is right.

Q Will you tell the Board what substances can be obtained from the treatment of this residue gas?

A As has already been mentioned one of the most important chemicals that can be made from methane is ammonia, which is now being done at the plant here in Calgary, and a number of other plants in the United States. From ammonia, of course, one can then make nitric acid and ammonium nitrate, without the use of any other chemical material. One could also make from ammonia and carbon dioxide, which is a by-product of the ammonia plant, urea. Another well known chemical which is being produced from methane is methanol which in turn can be oxidized to formaldehyde. Of course, urea can be combined with formaldehyde to produce plastics. In the last few years there have been plants built in the United States to make hydrogen cyanide in large quantities from methane and ammonia that in itself is a raw material for many other chemicals. There is also a plant under



B. P. Sutherland,
Dir. Ex. by Mr. Steer.

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construction or recently completed in the United States making acetylene from methane. Acetylene can be reconnected, for example, to hydrogen cyanide to produce a compound called acryeomterile that can be used and is being used as a basic material in some of the new synthetic fibres. I might also point out that starting with acetylene a large number of chemical products can be made, while the **whole Shawinigan** chemical industries in Quebec are largely based on acetylene. These are some of the more important established processes starting with methane.

Q Have you given thought, Dr. Sutherland, to the freight situation with respect to the cost of the petrochemical products?

A Well, I can suggest something in the case of one or two, perhaps. Ammonia may be a simple one to consider. It is pretty well known that to produce one ton of ammonia requires approximately 35,000 cubic feet of gas. We might assume perhaps that it will cost 20 cents a thousand to ship that gas by pipe line from Alberta to some point, say, on the Pacific Coast. That would represent an additional cost per ton of ammonia to \$7.00, I might say, in Seattle v. Alberta. The freight on ammonia, if it were made in Alberta and then shipped as such to some point on the West Coast, would, I think, be at least \$20.00 a ton. In other words, there is a differential in favour of producing ammonia at the end of the pipe line.

Q Any other example?

A Well, ammonium nitrate, I will mention. Ammonium nitrate requires about 15,000 cubic feet of gas per ton, and taking the same figure of 20 cents brings the cost to \$3.00. Now,

ANSWER

B. P. Sutherland,
Dir. Ex. by Mr. Steer.
Cr. Ex. by Mr. S. B. Smith.

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I am just guessing, but I think the freight on Ammonium nitrate from points in Alberta to points on the Coast might be about \$8.00.

Q There is nothing further you have to say?

A One could give other examples along that line but I think that is sufficient to indicate that in a number of cases it is cheaper to move the gas than it is to move the finished chemical. I perhaps should just mention also, of course, ammonium, to the United States - you have the question of duty on ammonium at the present time, that is a duty of \$25.00 a ton.

Q Which would still further increase the disadvantage?

A Definitely it would make it more favourable to produce ammonia at the end of the line in the States.

CROSS-EXAMINATION BY MR. S. B. SMITH:

Q Dr. Sutherland, is it ammonium nitrate you make largely in Calgary now?

A Yes. That is our finished product.

Q Where is it sold?

A Most of it is sold in the United States.

Q And some in Australia?

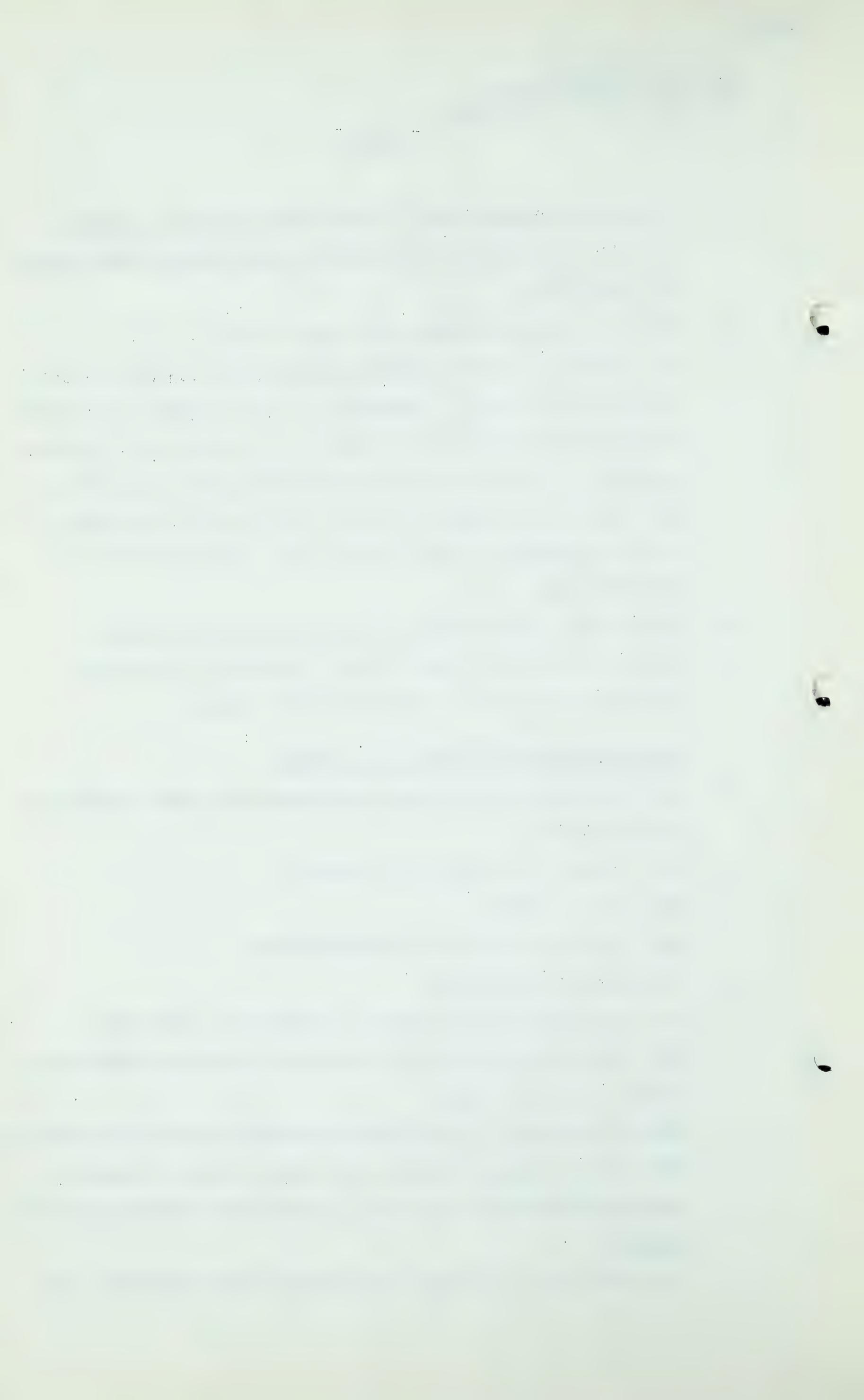
A I do not recall if any has been shipped to Australia.

Q What portion of it that is carried to the United States is subject to duty there?

A There is no duty on fertilizing material to the United States.

Q What is the average freight rate per ton that is borne by ammonium nitrate that you sell in the United States, approximately?

A I do not think I can give you a figure. The distances are



B. P. Sutherland,
Cr. Ex. by Mr. S. B. Smith.

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so varied from points in Alberta.

Q What is the furthest?

A It goes to California.

Q Did you hear Mr. Milner's evidence today?

A No, I am sorry, I did not.

Q He said this morning in his examination by his own counsel that 80%, I understood him, 80% of the chemical industries established in the last ten years in the United States had been established in the four most gas-producing States. I think they were Texas and Oklahoma -- and I have forgotten the others.

MR. STEER: Louisiana and Arkansas.

Q MR. SMITH: I suppose Mr. Milner knew what he was talking about when he made that statement?

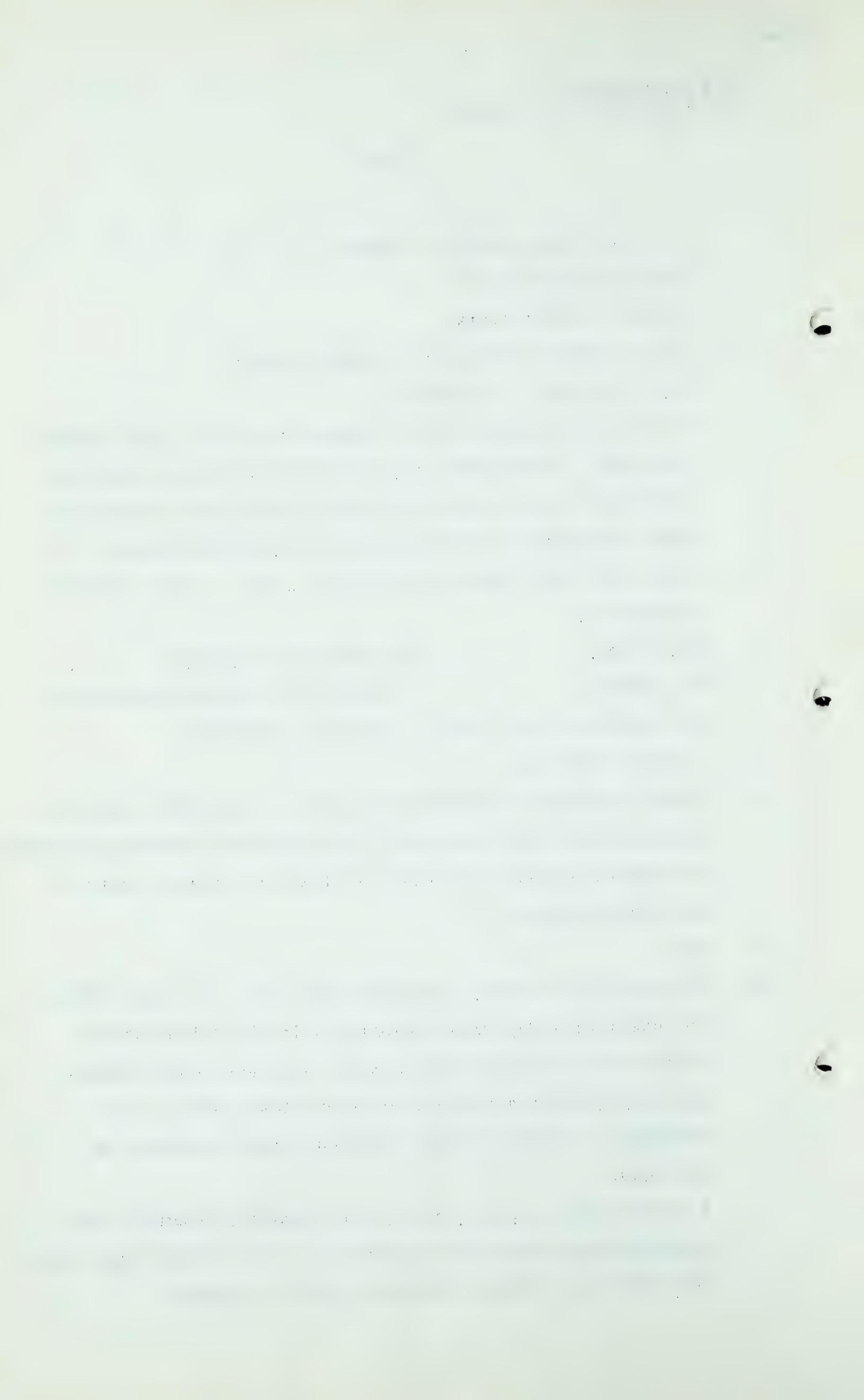
A I would think so.

Q There is plenty of evidence here that during that period of eleven years there has been a very large and increasing export of natural gas from the State of Texas to various parts of the United States?

A Yes.

Q Can you tell us this, Dr. Sutherland, why it is that 80% of the chemical industries established in the United States during the last eleven years went to gas-producing States when gas was being carried to other places where it was available to those chemical manufacturing companies, do you know?

A I do not know, no, sir, but I will suggest, assuming these industries are based on natural gas, other things being equal, they will go to where the natural gas is cheaper.



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Cr. Ex. by Mr. S. B. Smith.
Exam. by the Chairman.

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Q That is apparently what 80% of them have done in the United States, even though presumably they could have got gas at other places carried through a long pipe line?

A Yes.

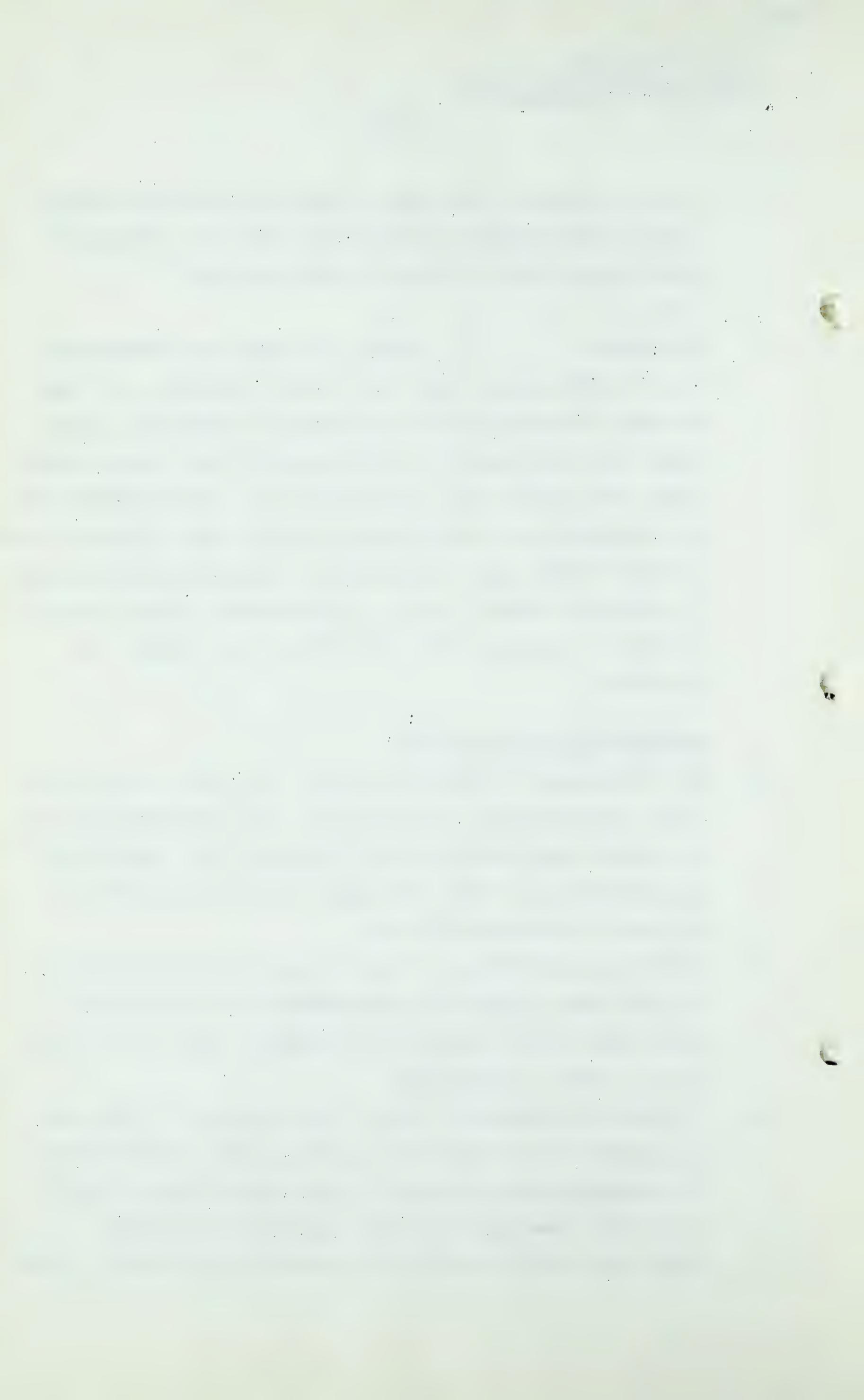
MR. NOLAN: Before Dr. Sutherland leaves the box, I would like to just make a short statement, if I may. We took the position before the Dinning Commission, and it might be in the record in this proceeding, but I am not sure about that, that so far as Northwest and Alberta Natural Gas are concerned, we were willing to have as one of the conditions attached to our export permit that we would not sell any gas in the United States for use as raw material in any synthetic process. I am authorized to say that that is still our position.

EXAMINATION BY THE CHAIRMAN:

Q Dr. Sutherland, do I gather from what you tell us today that if we let gas go to, say, Vancouver, that they might set up an ammonia plant there and that the plant here might suffer in consequence, so that you might not expand the plant as you might otherwise tend to do?

A That is a possibility. It would depend on many conditions, if there were a market for the ammonia near Vancouver of sufficient size to justify an independent operation, I think that is quite a possibility.

Q I think, Dr. Sutherland, that about a year or two years ago you applied to the Board for a permit under the Conservation Act regarding the utilization of gas other than as a fuel, to use as a raw material in the manufacture of ammonia. I think there were several other products in that permit. Did



B. P. Sutherland,
Exam. by the Chairman.
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your company not have an idea of expanding the plant and making these other products as you were authorized to do under the permit?

A I do not recall at this time. We do not at present have any definite plans to produce other products.

Q Thanks.

EXAMINATION BY DR. GOVIER:

Q Can you tell me if you know of any actual instances where methane or dry natural gas is to be used at the end of the transmission line as a chemical raw material. You made a reference to acetylene and I thought you said that was being done. Was that from the end of the pipe line?

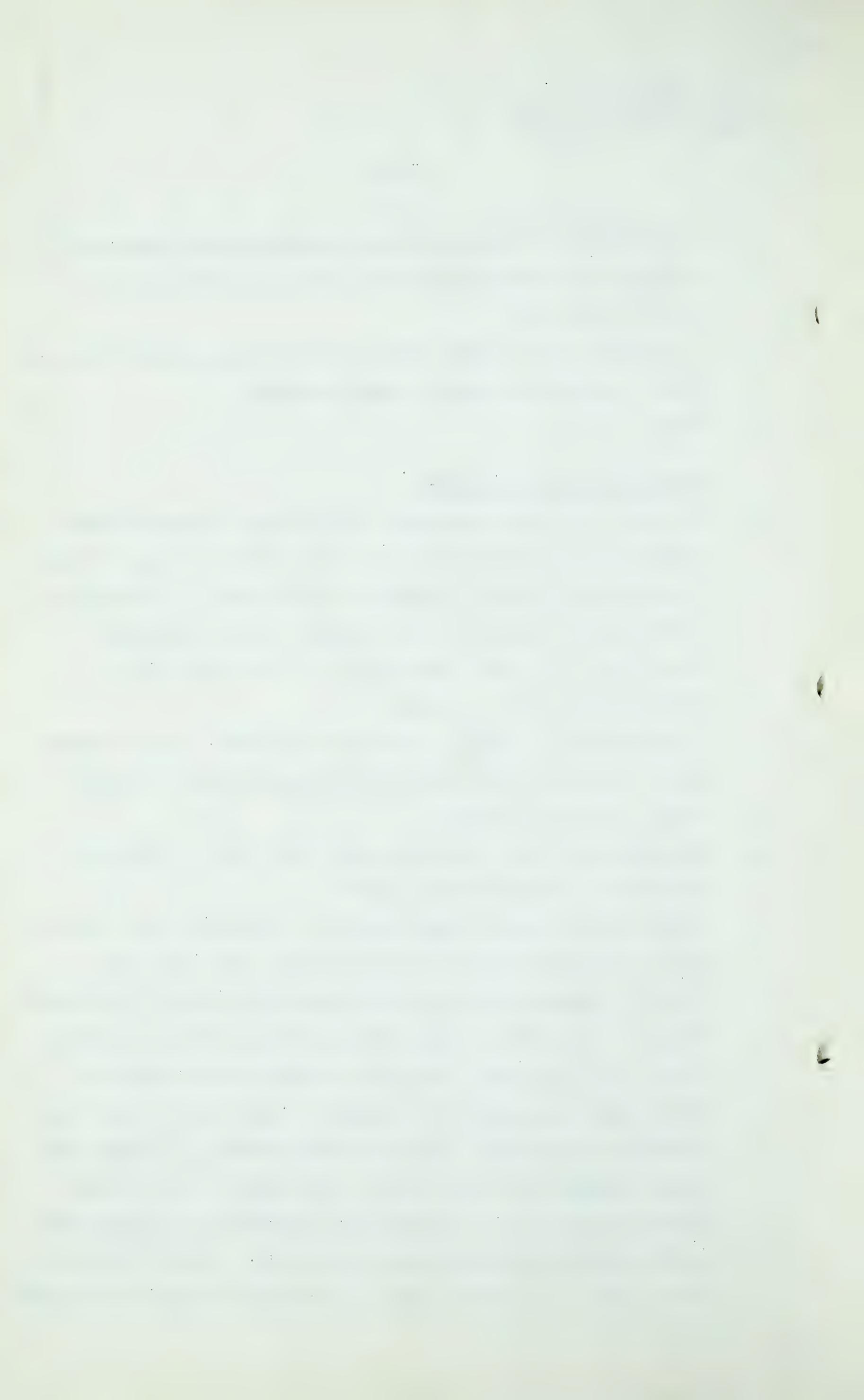
A That is being done in Texas.

Q I had heard of a plant, or a proposed plant, in Los Angeles and I wondered if you had been making reference to that?

A I had not heard of that.

Q Do you know of any instances where the kind of thing you indicate is actually being done?

A I know where some of those plants are operating but I do not know just their relation to the natural gas pipe line. I think in Canada we are in a different position to the United States. They have a large market within their own borders which we do not have. We have to depend very largely on export and in a number of products we have the further disadvantage of a tariff into the United States. It would not make probably much difference to the plant in the United States whether they, for instance, produced acetylene right near the gas field or at some other point, except the cost of the gas, so naturally they go to where the gas is cheapest.



B. P. Sutherland,
Exam. by Dr. Govier.
Cr. Ex. by Mr. McDonald.

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In any one particular case you have to consider the markets for raw materials required as well as the natural gas and then arrive at the most favourable point.

Q Is that what you had in mind when you said, in answer to Mr. Smith, you said other things being equal?

A Yes.

CROSS-EXAMINATION BY MR. McDONALD:

Q If I can just understand your illustration, Dr. Sutherland, in ammonia, I understand there is 3500 cubic feet of gas in a ton of ammonia?

A Correct.

MR. STEER: 35,000.

Q MR. McDONALD: Yes, that is right, 35,000 and to transport that at 20 cents per Mcf would be \$7.00?

A That is correct.

Q And then to transport a ton of ammonia, for instance, made here, was \$20.00?

A Yes.

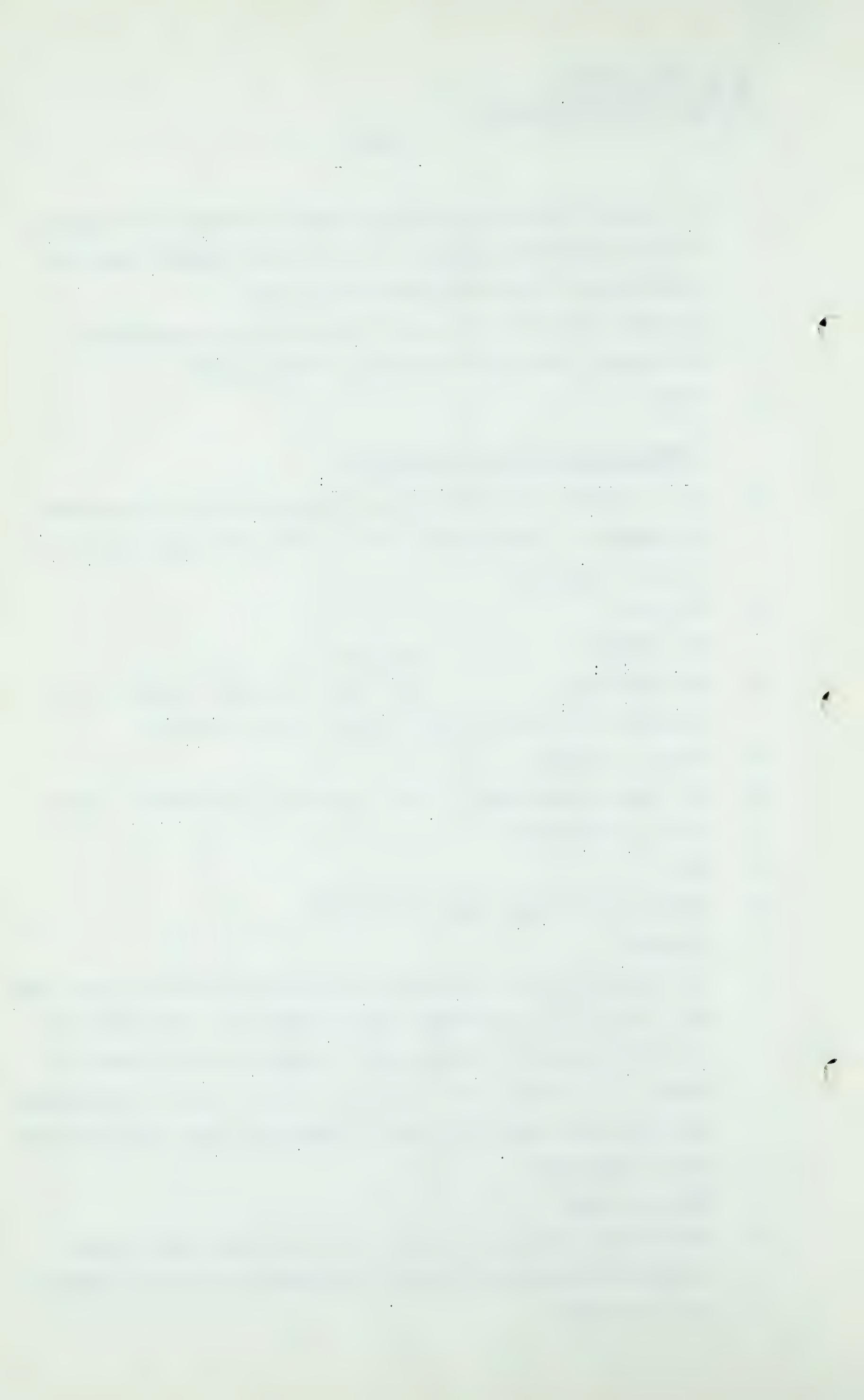
Q There is a saving, then, of \$13.00?

A Correct.

Q And say your plant in Calgary was paying 10 cents at the field for its gas, it is actually paying $10\frac{3}{4}$ cents, and then there is a transportation charge which brings it up to around 15 cents. If you add the 10 cents to the 20 cents transportation that you have here, you would be paying 30 cents for the same gas in Vancouver?

A That is right.

Q So that the producer here and you would have a net saving of \$13.00 a ton from freight, as between competition between the two plants.



B. P. Sutherland,
Cr. Ex. by Mr. McDonald.
Cr. Ex. by Mr. Nolan.

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Q Yes, assuming that it cost 20 cents to move the gas and \$20.00 to move the ammonia.

Q So that then the vendor of the gas in Alberta being cognizant of those facts could add \$13.00 to his price of the gas delivered to your plant, couldn't he?

A Yes, he could.

Q And that would bring the gas at the well head up to almost 46 or 47 cents. In other words, the freight rate is just cutting the value of the gas here on your illustration?

A If you care to adjust the price of the gas at different points, of course, you could overcome the advantage to the competitor.

CROSS-EXAMINATION BY MR. NOLAN:

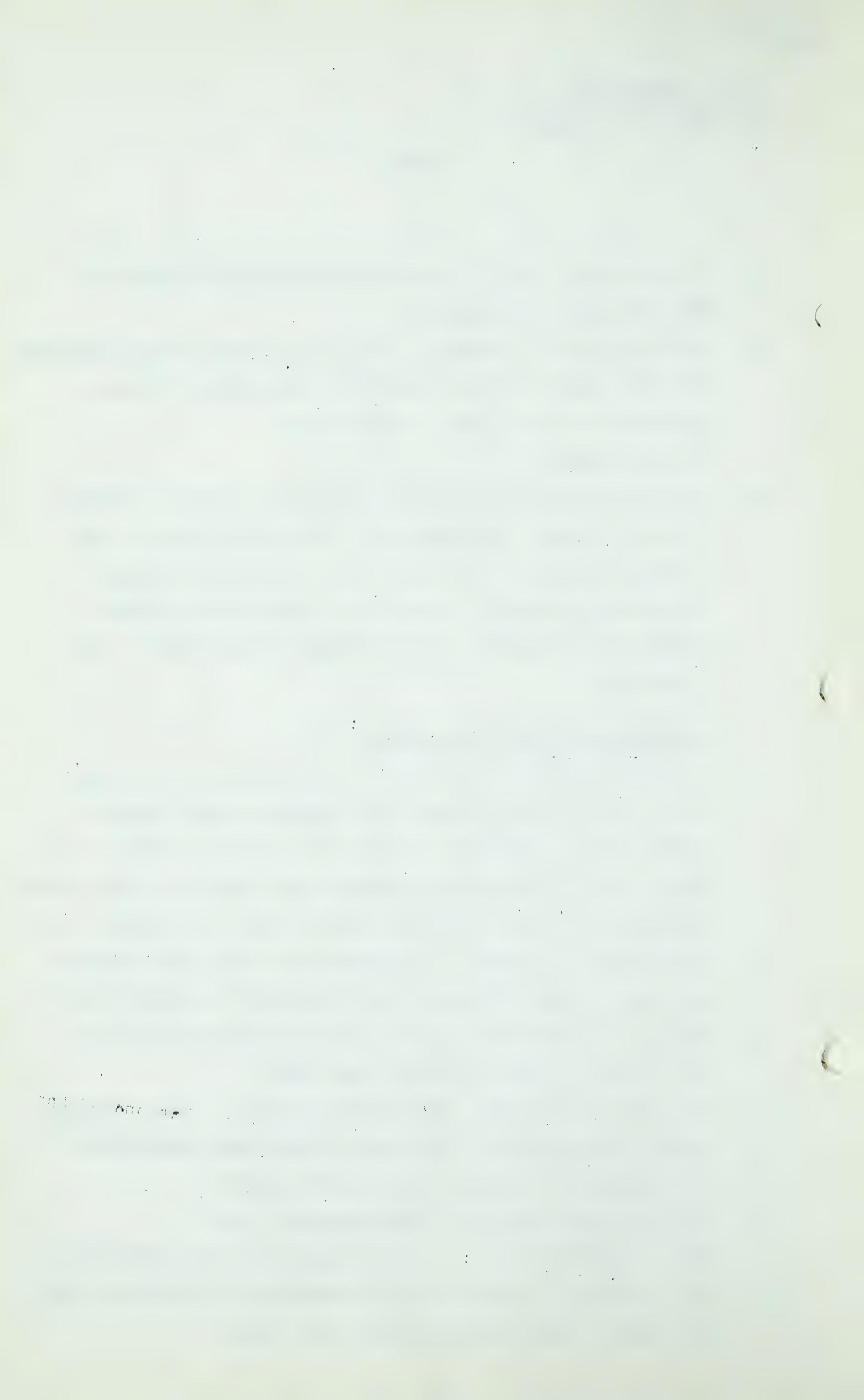
Q I was just going to ask you, Dr. Sutherland, I am not sure that I gathered the answer that was made to Dr. Govier's question as to whether you knew there was any instance where at the end of the pipe line methane was used as a raw material, there was a little discussion about Texas, and then Dr. Govier mentioned Los Angeles. I suggest to you the only instance you know of where methane is so being used is in the field?

A Well, I said I was not sure. I did not know where those plants are in relation to the gas field.

Q All right, thank you, That is your answer? Now, one final thing, Dr. Sutherland, is it not a fact that one of the most important of basic chemicals is sulphur?

A That is a very important basic chemical, yes.

MR. C. E. SMITH: If these gentlemen are all through, Mr. Crockford is here and can be examined in connection with the exhibit that was distributed last Monday.



M. B. B. Crockford,
Dir. Ex. by Mr. C.E. Smith.

- 5410 -

M. B. B. CROCKFORD, having been first duly sworn, examined by Mr. C.E. Smith, testified as follows:

Q Mr. Crockford, you, together with Mr. King and various members of your respective departments, have prepared a submission entitled, "Gas Reserves of the Picardville, Legal, Morinville and Cessford areas, is that correct?

A That is correct.

Q And this was distributed last Monday, I think, to all parties?

A Yes.

Q I guess you gave it to me and I distributed it?

A Yes.

Q And I am tendering that, sir.

THE CHAIRMAN:

Exhibit 127.

SUBMISSION OF M.B.B.CROCKFORD AND R.H. KING, "GAS RESERVES OF THE PICARDVILLE, LEGAL, MORINVILLE AND CESSFORD AREAS PUT IN AND MARKED EXHIBIT 127.

Q MR. C.E. SMITH: And, Mr. Crockford, I think there are two slight corrections that should be made. The first correction is in Table I on the right-hand bottom corner of Table I, the figure 1265 should read 1162, and your total should read 1265, is that correct?

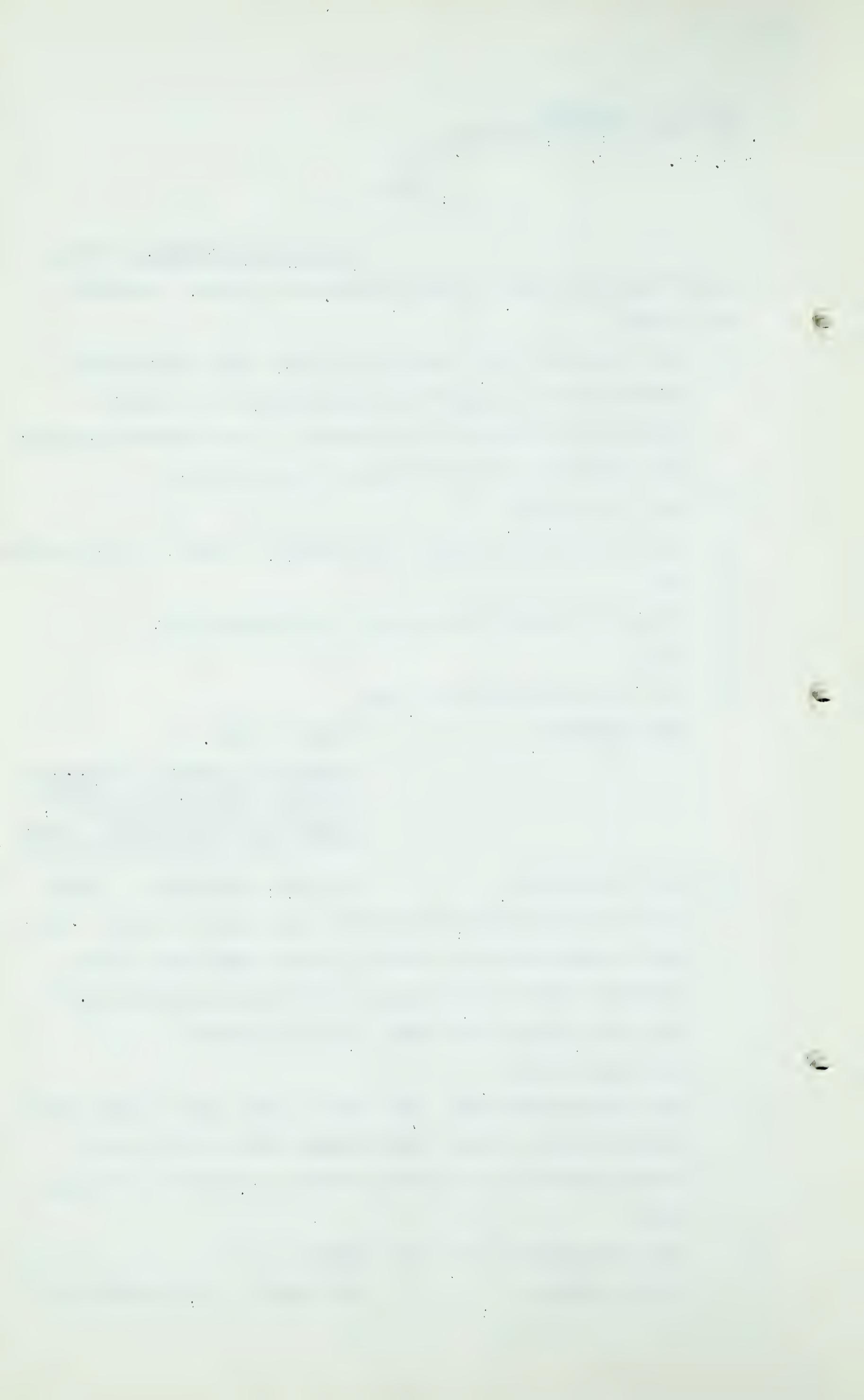
A That is correct.

Q 2197 should read 1265. And there is one other slight point, Mr. Crockford, on your Cessford map there is 750 which should read 700, as a matter of fact, on one of your lines there?

A Yes, the figure 7, the last figure.

MR. S.B. SMITH:

Net sand 7, is that what he



M. B. B. Crockford,
Dir. Ex. by Mr. C.E. Smith.

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is talking about?

Q MR. C.E. SMITH: The figure 7 being the last figure, you will observe up in Range 13, near the top of the map, there is one of those contours marked 750, and apparently it should be 700.

A There is one other error I would like to point out on the same figure, Mr. Smith, and that is in Township 25, Range 11, Cessford No. 11, there is a thickness of 5 feet credited there which should be washed out.

Q That is where, again, discussing the Canadian Delhi Cessford?

A Yes, sir.

Q That 5 feet should be washed out?

A Yes.

Q I suggest, seeing everybody has had this for over a week, that I might turn Mr. Crockford over to those who would like to cross-examine him on his submission, if the Board agrees. Would you answer these gentlemen, Mr. Crockford?

A Yes. I would like to point out one other error in Figure 6, in Range 14, Township 27, Amerada Crown 41-5, there is sand thickness of 4 feet credited there which also should be washed out.

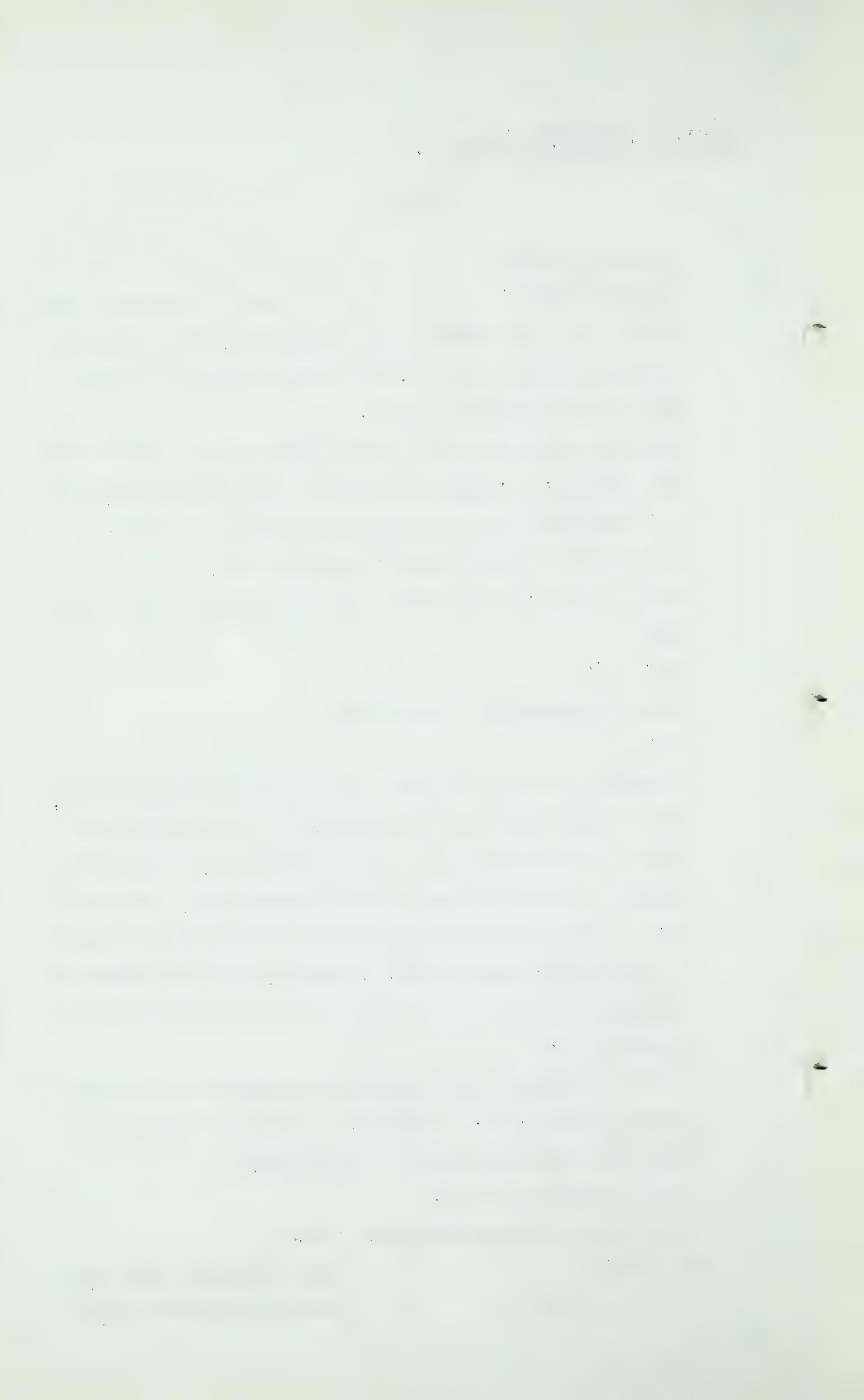
Q Is there anything else you wanted to mention before you answer questions, Mr. Crockford? I assume they have all read your text and looked at the exhibit.

A There is nothing further.

Q Just answer my learned friends, then.

MR. NOLAN: I have nothing, thank you.

MR. S.B. SMITH: I have no questions, sir.



M. B. B. Crockford,
Exam. by Dr. Govier.

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MR. McDONALD:

We have no questions, sir.

MR. PORTER:

No questions, sir.

EXAMINATION BY DR. GOVIER:

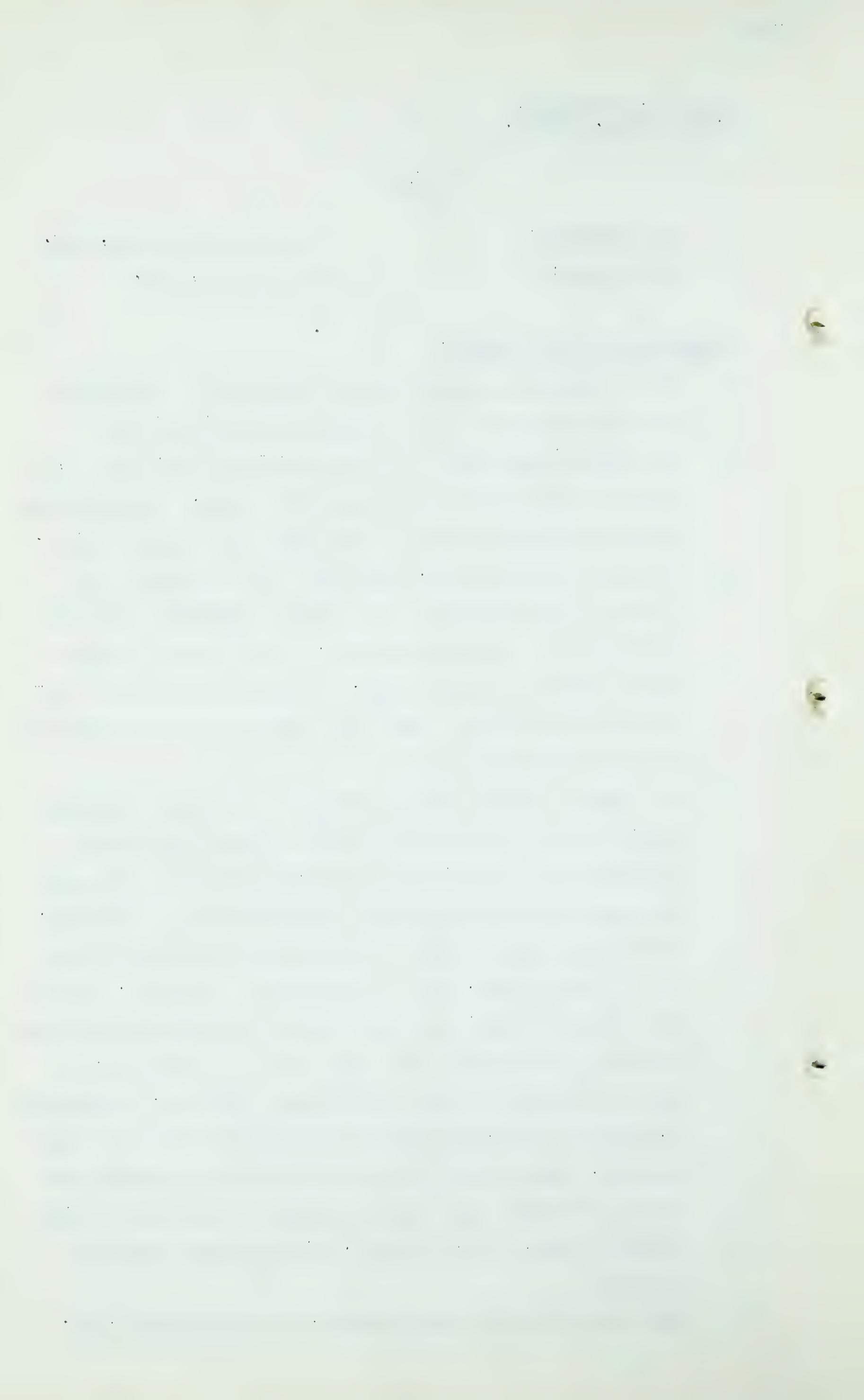
Q Mr. Crockford, I do not see any estimate for the Viking sand at Cessford. Did you make an estimate of that?

A No. The Viking sand in our interpretation occurred on, I think it was, three wells within this area. The wells were widely scattered and we did not make any estimate for it.

Q As I understand it, Mr. Crockford, your approach on the estimate from Morinville is a little different than that of some of the other estimators. Your Figure 4 seems to show a number of local areas. I wonder if you would discuss that and tell us what your thoughts are in connection with the Morinville field?

A The Figure 4 shows contours drawn on the top of the Basal Quartz sand. The map and the scale shows only 100-foot contours but more detailed contouring shows that the gas accumulations are associated, or appear to be associated, with local highs in each of those areas excepting the one in the upper right, that is, Divisions 1, 2 and 3. We have not enough information on that area to delineate any structure but in the other four areas which are outlined, the other four proven areas, I should say, that is, in Division 5, Division 9, Division 12 and Division 15, there is local closure. This map was drawn showing 20-foot contours and in each of those areas there is closure shown and the gas accumulations, in our opinion, are associated with the closure.

Q Well, what about the water table? We heard before, Mr.



M.B.B. B. Crockford,
Exam. by Dr. Govier.

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Crockford, that this whole field had a continuous inclined water table.

A Yes.

Q What is your thought on that?

A In each of those areas there is a fair correspondence between the water tables as determined from well logs on the various wells, that is, from the electrologs in each of the wells. If you like, I will give you a few of those. We have them on a map here.

Q When you say, "in each of the areas", you mean in each of them separately?

A Pardon?

Q Did you mean in each area separately?

A Yes, sir.

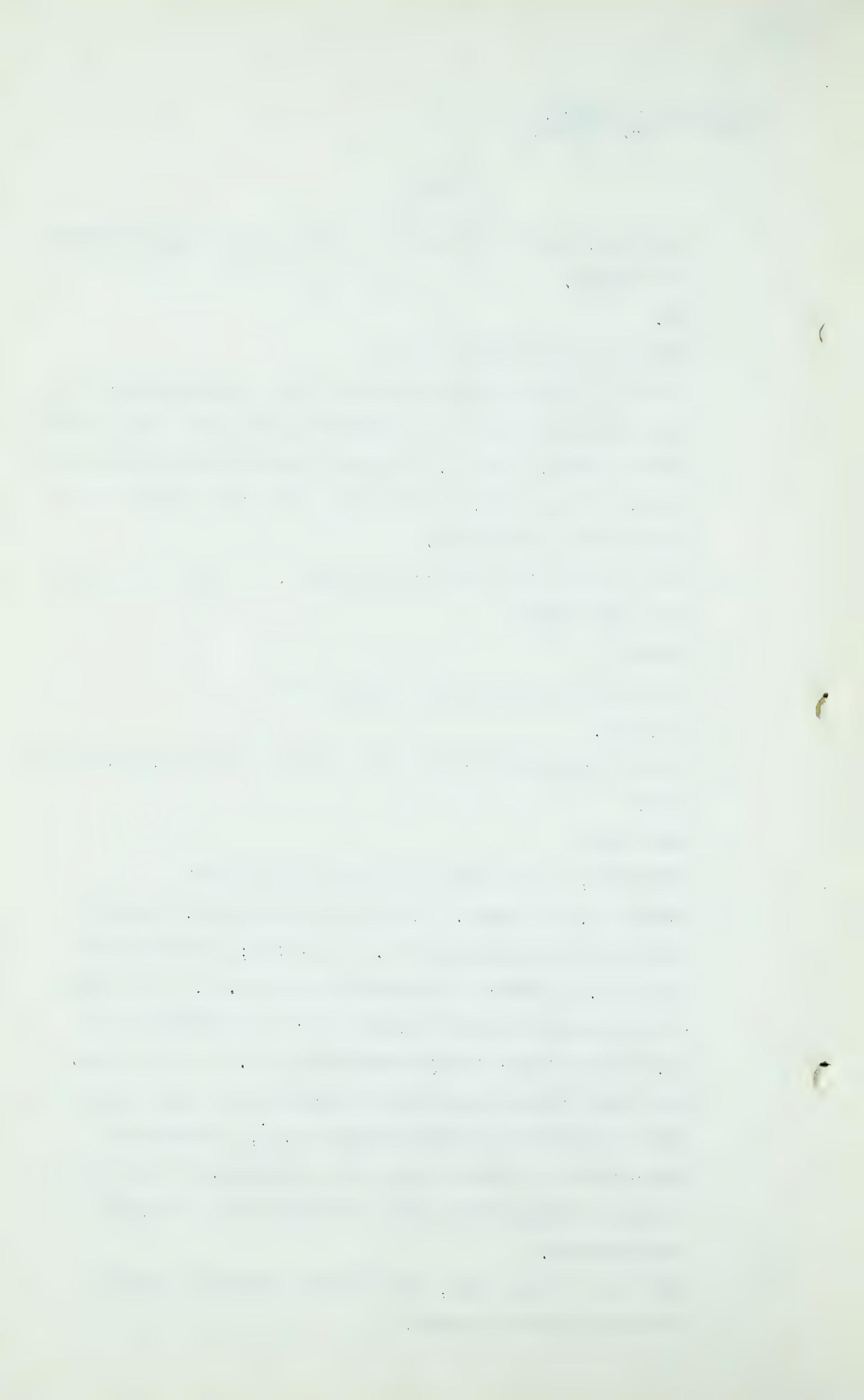
Q Do you have them for this area marked number 12, Mr. Crockford?

A Which one?

Q Number 12, do you have the water table there?

A Number 12, all right. In the proven area 12, the water table in Ajax-Morinville No. 7 is -1241; in Ajax-Morinville No. 1, 1266; in Ajax-Morinville No. 6, it is 1278; in Imperial-Morinville No. 2, 1277; in Ajax-Morinville No. 2 it is 1280; in Ajax-Morinville No. 11 it is 1276. All those figures are in fair agreement with the exception of possible Ajax-Morinville No. 7, in which the water table is higher than in the other wells but there is good correspondence with the other wells, they fit very closely.

Q Is it your idea, then, that in this particular region the water table is level?



M. B. B. Crockford,
Exam. by Dr. Govier.

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A I do not get you.

Q I said, is it your idea that over this particular region
the water table is level?

A Well, no, it is not level. The sands tend to finger out
there or they have tight bands in them, but the water table
there is fairly consistent, and if we go up to another area
we find that there is another water table, like in area 9,
for example. In Imperial Morinville No. 3 the water table
is -1168, in the Imperial Morinville No. 1 also 1168, and
in Ajax-Morinville No. 16 it is 1176.

Q What about the dry holes that have been drilled in this area?
Do they fit this picture that you present?

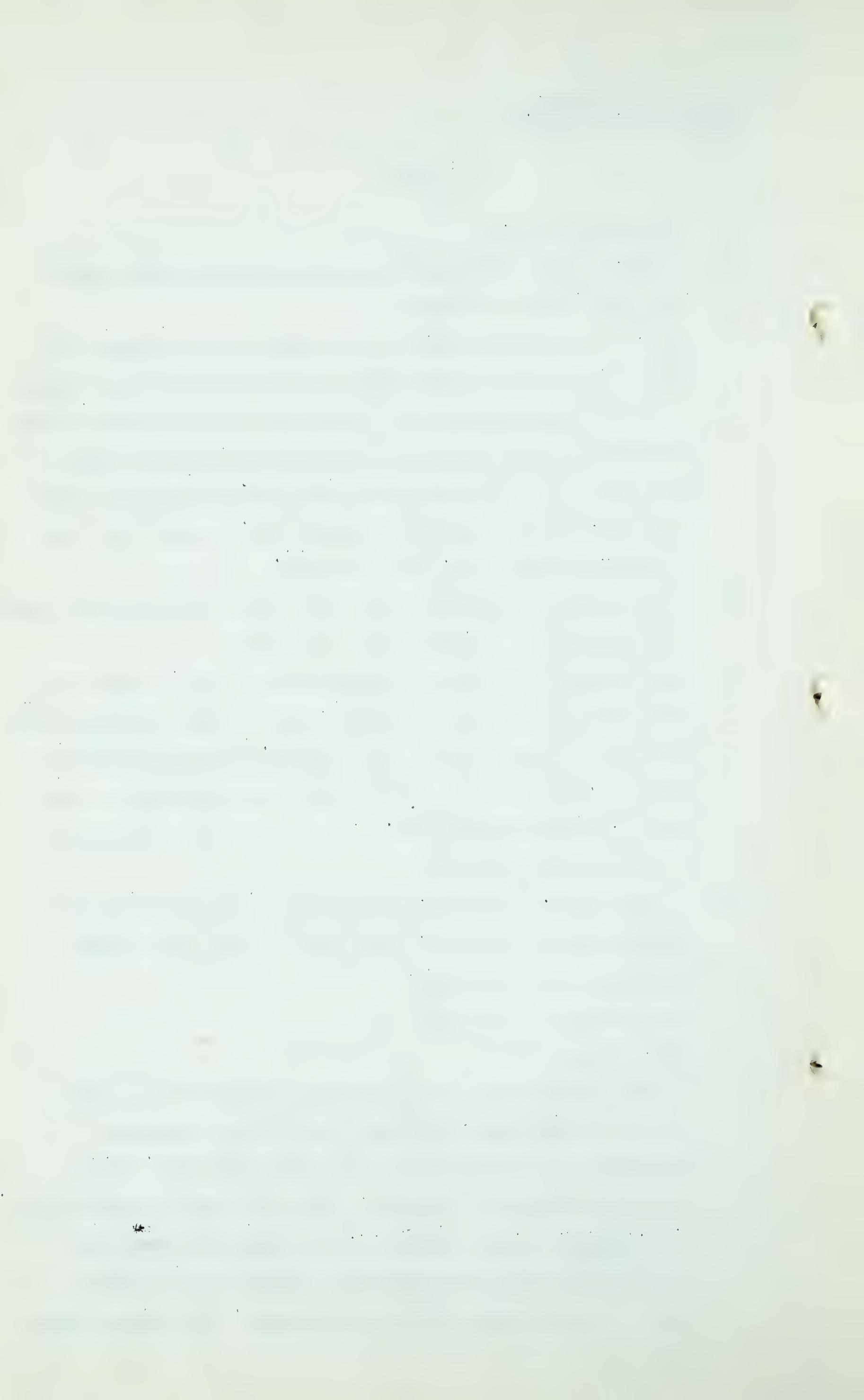
A They seem to fit into the pattern fairly well. There is a
syncline between areas 12 and 15, and in that syncline there
are two dry holes, Central Del Rio No. 2 and Ajax Morin-
ville No. 3. In the syncline just north and west of area
No. 12, Ajax-Morinville No. 8, is a dry hole, and that is
a structural low there.

Q I wonder, Mr. Crockford, if you would comment briefly on
Figures 6 and 7, please. Just give us your idea of the
geology of the structure.

A The geology of the area?

Q Yes, please.

A In the Cessford area, the principal prospective gas zones
are the Viking sand, the Basal Colorado and the Basal
Blairmore or sometimes called the Sunburst Sand. There
are three principal horizons. Those are shown, incidentally,
in columnar section Figure 5., The Viking sand ~~and~~ the
Basal Colorado are sometimes called the Upper Blairmore
and are marine sands and of wide extent. The Sunburst sand



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or Basal Blairmore is of more local occurrence. It is a continental sand and hence can not be depended on to cover as wide areas as the marine sands. So much for the stratigraphy of the area.

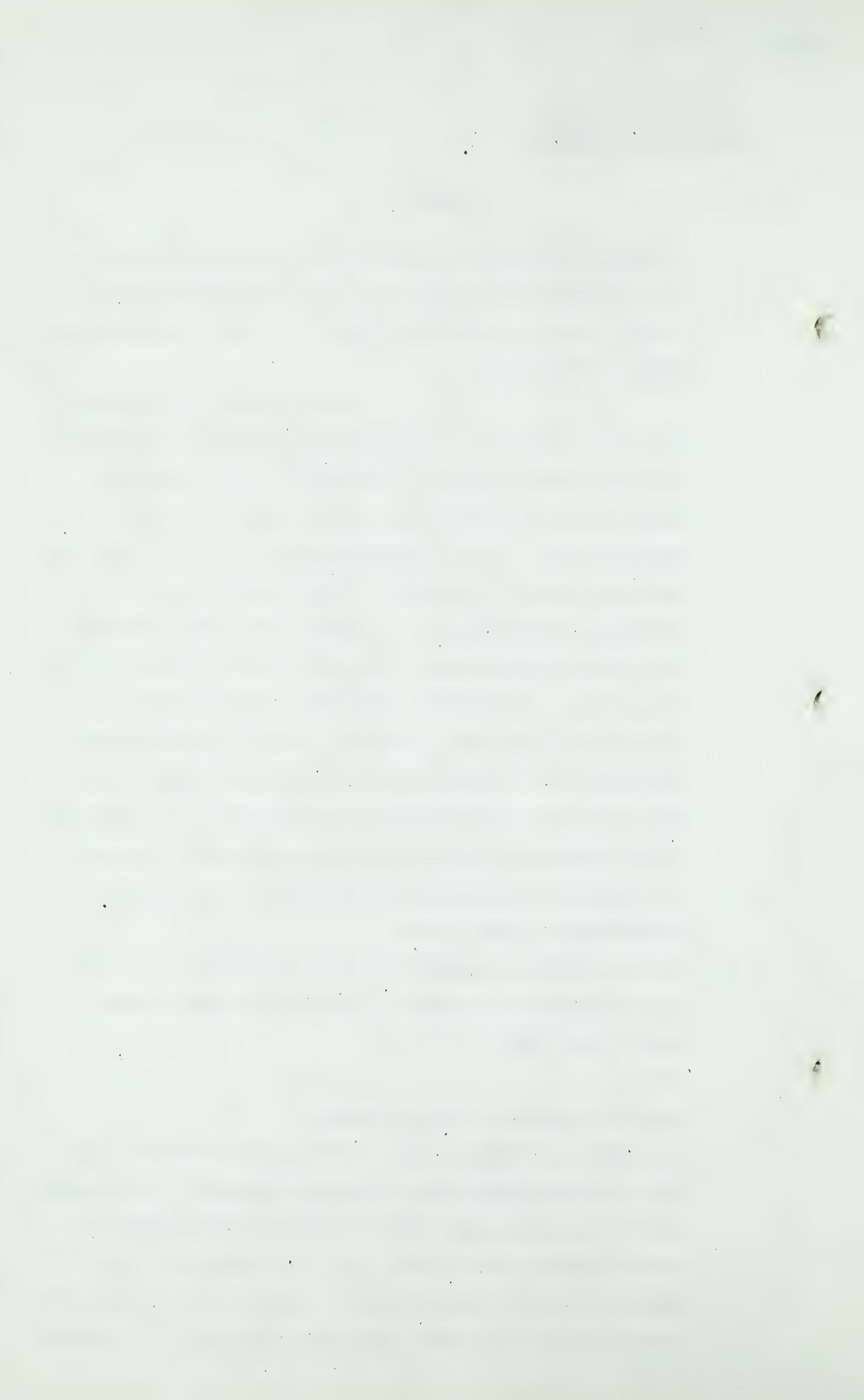
Structurally, the Cessford area lies between the northward plunging Sweet Grass arch and the Alberta homocline which dips to the southwest. You can see in Figure 6 the contours dip off towards the northwest here. In the southeastern part of the area the elevations are of the order of -450 and the dip to the northeast. Pardon me, a dip towards the northwest there. The dips are rather low in this area, being about 10 feet to the mile. Not knowing just what the controlling features are for local structures, small structures and accumulations, it may be due to folding and there is no doubt that the irregularities of the Paleozoic surface is buried limestone hills but have an appreciable effect. The trapping of sediments over them would cause some accumulation of gas or oil.

Q I was wondering in particular, Mr. Crockford, why it is that on Figure 6 you seem to have little proven areas, one for each well?

A Yes.

Q Would you comment on that, please.

A All right. In Figure 6 the control that we had to work with is rather meagre for estimating reserves. We thought that for a marine sand that we allowed 1,000 acres in a surrounding well of proven, that that would be a fair figure, so all of these areas, at least, most of them, are of similar size and would represent 1,000 acres of proven



M. B. B. Crockford,
Exam. by Dr. Govier.

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reserves. As to the probable reserve, we determined that largely on the basis of our structural contours, and you can see, for example, in the large area in the centre, that is probable area number 4, that it follows the configurations pretty well of the sand. I might say in this connection that the only reliable contouring horizon we have to work with was the top of the Blairmore formation and that is 700 feet above the Sunburst sand and so in picture 7 our structure is not so accurate on the Sunburst or Basal Blairmore but this is a very accurate picture of the top of the Blairmore and also the top of the Basal Colorado sand. The Basal Colorado sand lies directly on top of the Blairmore formation, or within a few feet. Sometimes there are a few feet of marine shale between this sand and the Blairmore formation. That is why it is called here the Basal Colorado.

Q Could you tell me, Mr. Crockford, if the recent drilling experience in this area has borne out these rather small proven areas you have associated with each well?

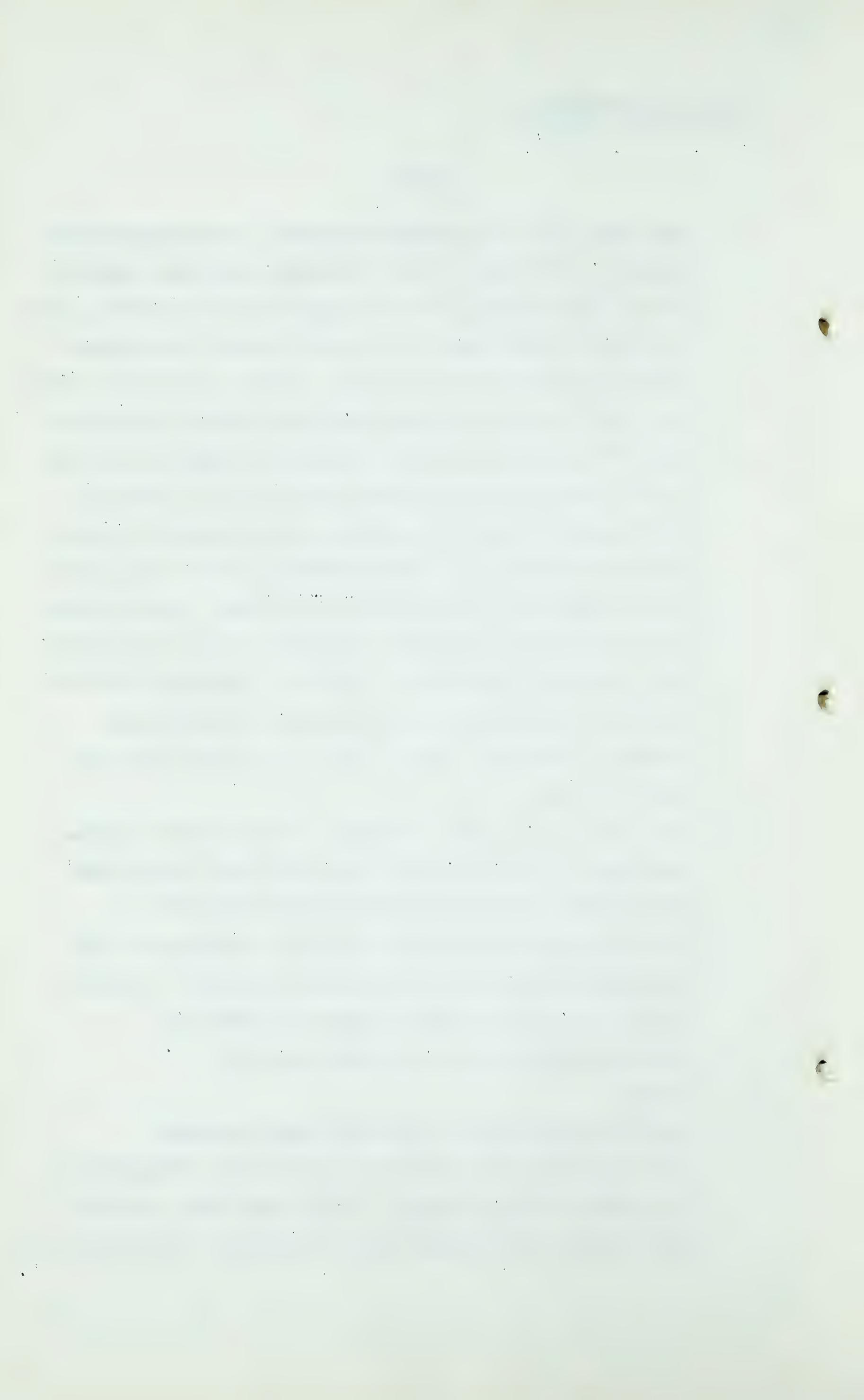
A This map is fairly up-to-date with the exception of the Cessford No. 14, which was recently completed. Cessford No. 14 is in Section 19, Township 25, Range 12.

Q Was that completed as a potential gas well?

A Pardon?

Q Was that completed as a potential gas procedure?

A I do not think so. I have not got all the information on it yet but it would bring -- it is lower than is shown here and would bring the -600 foot contour very close to it.



M . B . B . Crockford,
Exam. by Mr.Goodall

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EXAMINATION BY MR. GOODALL:

Q What control did you have, Mr.Crockford, in outlining probable areas in the central section? I was just wondering why you were outlining two separate areas rather than joining them up into one. We will take the one from the one marked 11 there, that is Canadian Delhi-Cessford 6, I believe, across to Number 7. Was there any reason for that?

A Yes, there is a low area between those two areas that is not shown with these 6-foot contours.

Q Does it go below the water line, or is there some reason like that for cutting it off?

A We did not look at it from that angle. They were taken from the standpoint of what we thought was a reasonable figure there. It would go down below the water line. These areas, I might say, would tend to be probably broken down into smaller areas when further drilling has been completed. I might say in that connection that in outlining a probable area, I did not wish to have any probable reserves out in the same class of proven reserves, as the standard of probable reserves is below that of proven.

Q You would not bunch them together and call them established reserve that you would depend on?

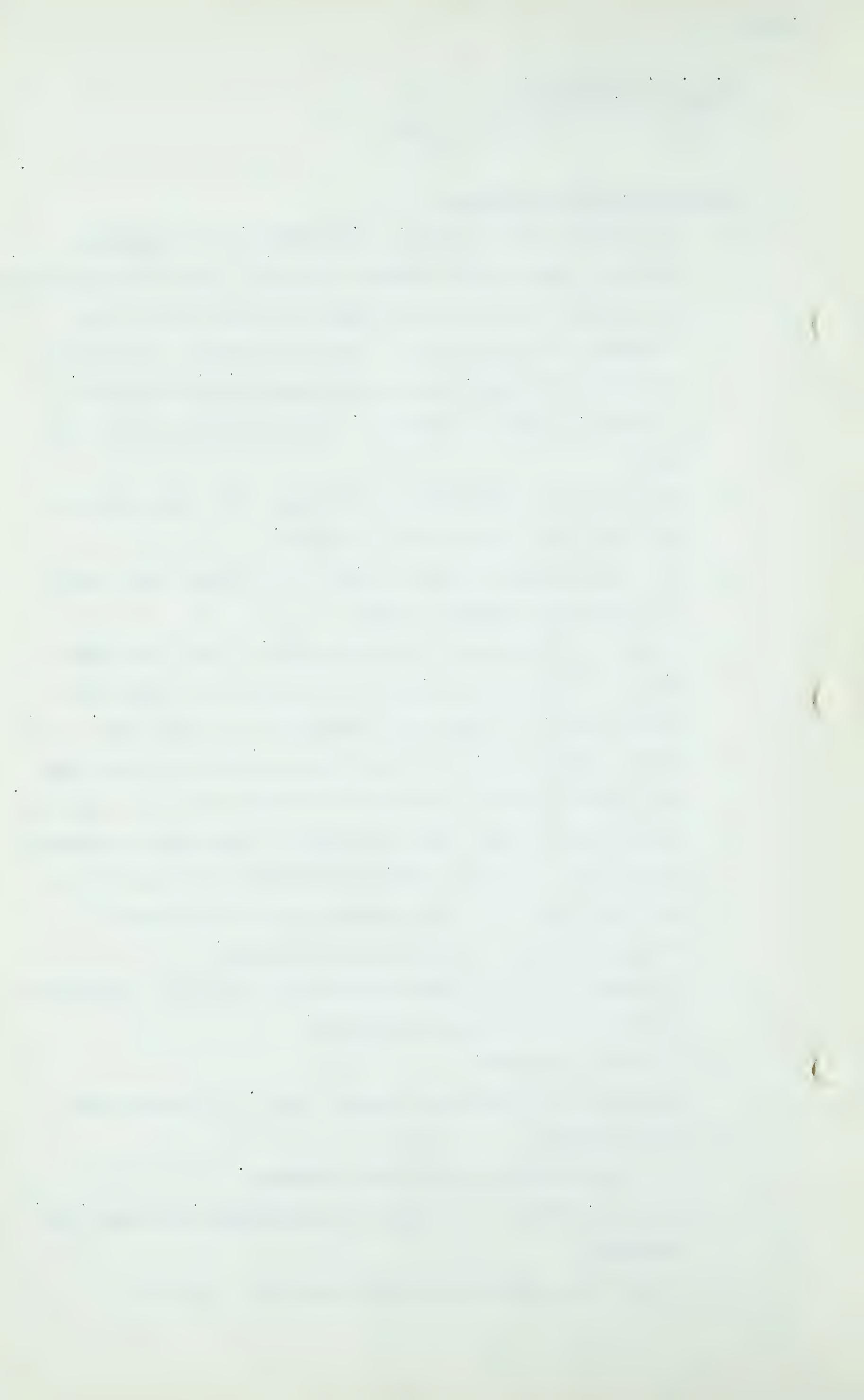
A I did not get that?

Q You would not group them together then, your proven and your probable?

A No. The probable reserves are probable.

Q MR. C. E. SMITH: Give us a percentage, will you, Mr. Crockford?

A I figure the probable reserves may prove up to be



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Exam. by Mr. Goodall
Cr.Ex. by Mr. Nolan

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50% proven. That is a minimum figure, or 60%.

Q Minimum?

A Yes. We do not figure on them as 100%. If it was 100% we would call it proven. The probable reserves has a better than 50-50 chance of being proved up.

Q DR. GOVIER: What is the possible reserve?

A Pardon?

Q What is the possible reserve, Mr. Crockford?

A Oh, about - well, it is better than a good prospect. I might say, with regard to a figure, if you want it, 25%, and that would be a minimum figure, I would say.

MR. C. E. SMITH: You have at last got somebody, sir, to give you a percentage.

Q DR. GOVIER: Does that mean that you would bet 1 to 4 on a producing well in the possible area?

A Pardon?

Q Does that mean that you would be bet 1 to 4 on a producing well in the possible area?

A Does it what?

BY THE REPORTER: "Does that mean that you would bet 1 to 4 on a producing well in the possible area?"

A Yes, that is it, 1 to 4.

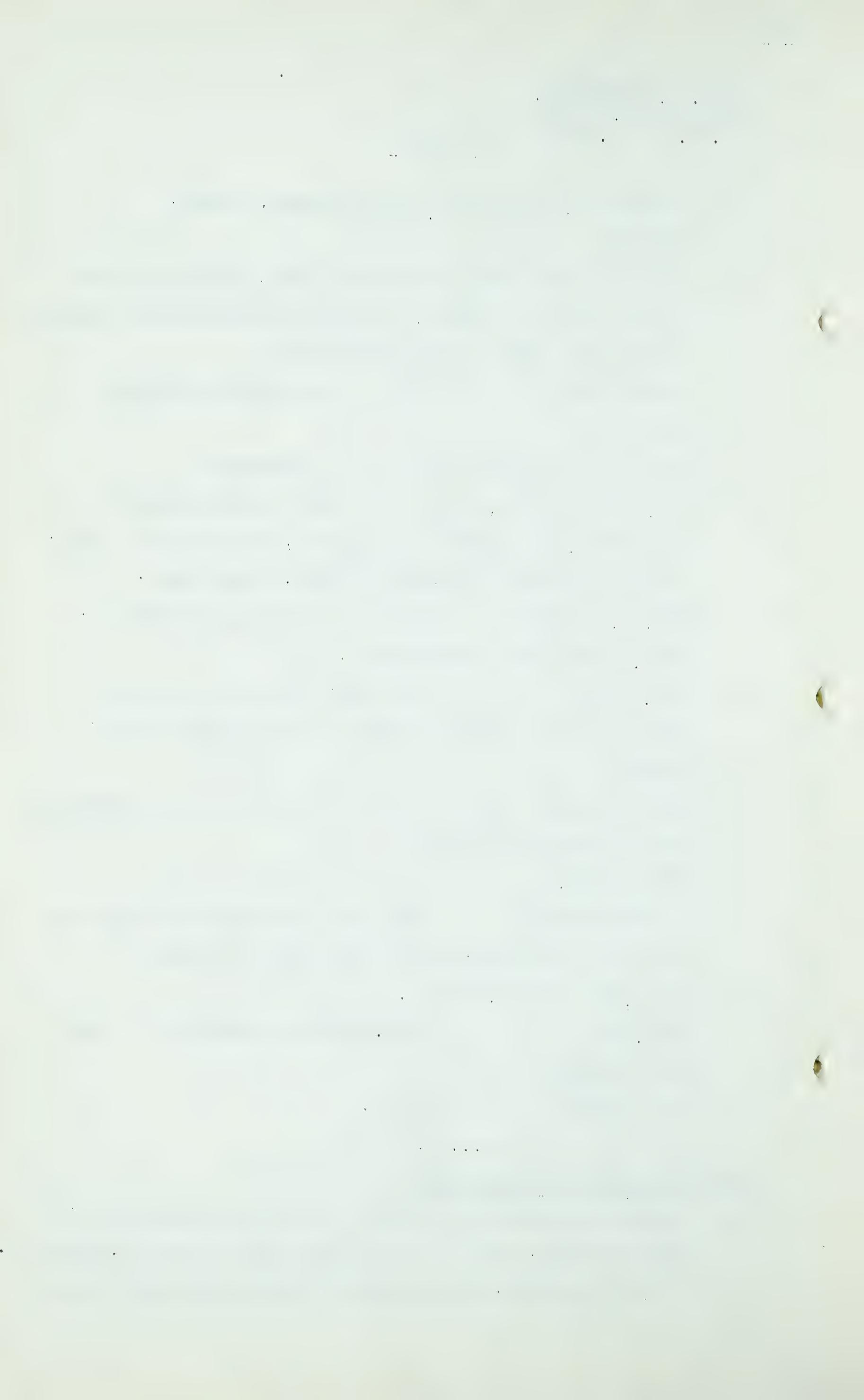
MR. NOLAN: Mr. Chairman, I wonder if I might ask a question?

THE CHAIRMAN: Yes.

.....

CROSS-EXAMINATION BY MR. NOLAN:

Q I should have asked it before. It does not arise out of the submission, but it is a general question, Mr. Crockford. It has been said here by some of the witnesses that there



M. B. B.Crockford,
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should not be constructed at once a gathering system, but it should be something that is created step by step as additional fields come in. Do you agree with that?

A Would you mind repeating that?

Q I say, that some of the witnesses have said that the gathering system should be a matter of slow growth to take care of the additional fields as they are discovered and are required.

MR . C . E . SMITH: You will remember, Mr. Nolan, that the witness is a geologist.

MR.NOLAN: Well, I was going to lead to a geological question.

Q And that is this, Mr.Crockford, that there are large potential reserves in the Foothills country?

A Yes.

Q Are there not?

A We believe so.

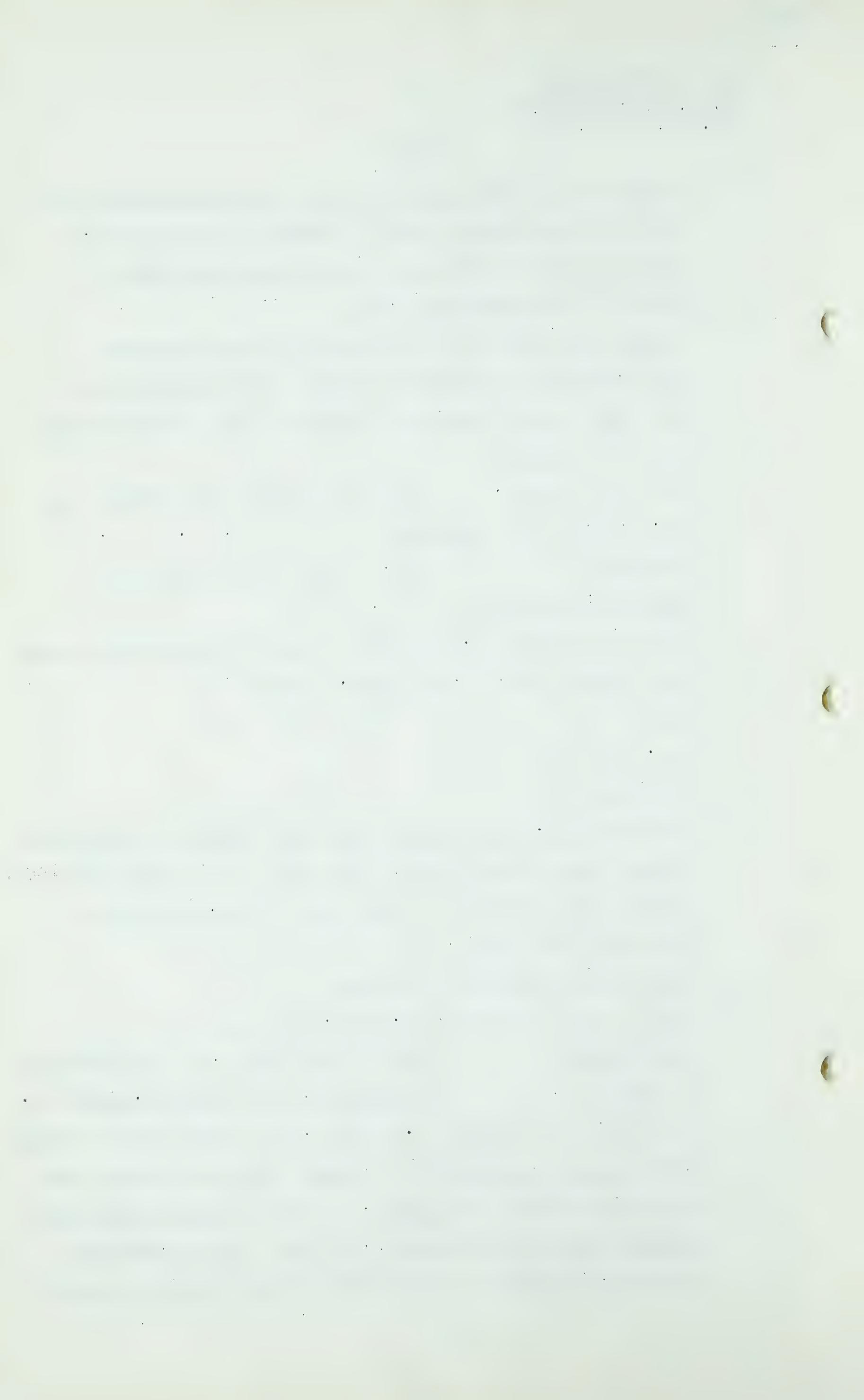
Q And can you foresee the day when there might be a gathering system running from the north to the south, in the Foothills' area of this Province, to take care of the reserves in the Foothills' area?

A That is quite possible, Mr.Nolan.

Q That is all I wanted to ask you, thank you.

THE CHAIRMAN: That is all, thank you, Mr.Crockford.

MR.NOLAN: Mr.Chairman, I have some exhibits to file, if I may, please. You will recall that earlier during this Hearing I presented in evidence contracts between the Northwest Natural Gas Company, the Gulf Company, California Standard, and Britalta and Deep Rock. Those contracts have been assigned to Alberta Natural Gas Company, which is



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the company especially incorporated, and the one entitled to the permit from this Board, if such be granted, and so, to complete the record only, I ask to have marked, first of all, the assignment from the Northwest Natural Gas Company to Alberta Natural Gas Company of the Canadian Gulf Oil Company contract.

THE CHAIRMAN: That will be Exhibit 128.

ASSIGNMENT FROM NORTHWEST NATURAL GAS COMPANY TO ALBERTA NATURAL GAS COMPANY OF CANADIAN GULF OIL COMPANY CONTRACT MARKED EXHIBIT 128.

MR.NOLAN: And, secondly, the assignment from the Northwest Company to the Alberta Natural Gas Company of the California Standard contract.

THE CHAIRMAN: Exhibit 129.

ASSIGNMENT FROM NORTHWEST NATURAL GAS COMPANY TO ALBERTA NATURAL GAS COMPANY OF CALIFORNIA STANDARD CONTRACT MARKED EXHIBIT 129.

MR.NOLAN: And, lastly, the assignment from the Northwest Natural Gas Company to Alberta Natural Gas Company of the Britalta and Deep Rock contract.

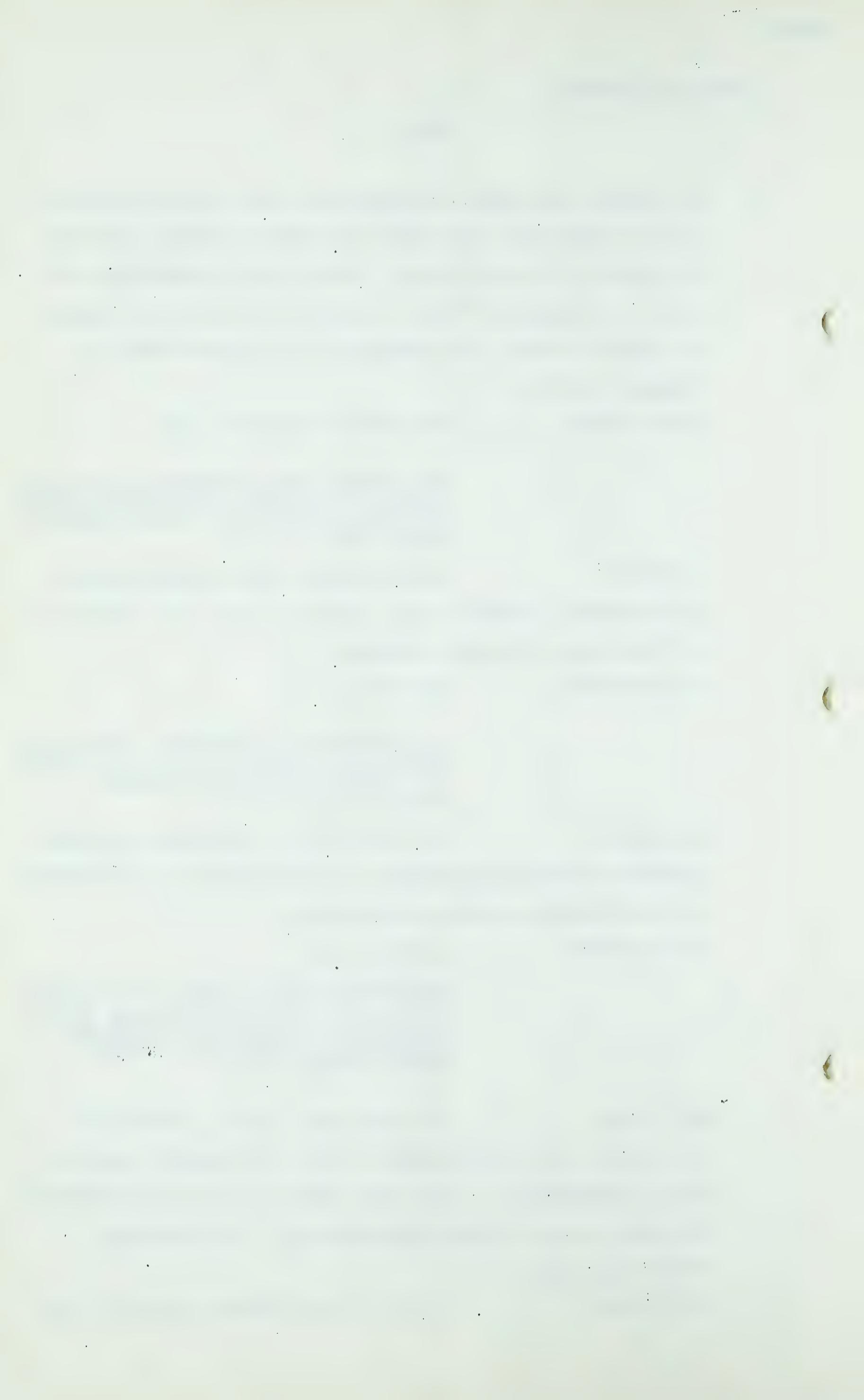
THE CHAIRMAN: Exhibit 130.

ASSIGNMENT FROM NORTHWEST NATURAL GAS COMPANY TO ALBERTA NATURAL GAS COMPANY OF BRITALTA PETROLEUMS LIMITED AND DEEP ROCK OIL CORPORATION CONTRACT MARKED EXHIBIT 130.

MR. NOLAN: They are only for the purposes of the record, and I am putting on file the original copies of these assignments. I have not copies for my learned friends, but they are only simply assignments of the contracts.

Thank you, sir.

MR.PORTER: I, too, have some more paper for you,



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Mr. Chairman. I think nearly every other applicant has filed these letters with regard to the companies which own gas, saying "To Whom It May Concern: We will sell you the gas if you get a permit". I have a bundle of those here, sir. Now, in addition to that, I have a letter passing from Canadian Delhi Oil Limited to Trans-Canada Pipe Lines Limited, which is intended to serve this purpose: Under the statute under which this Board is sitting, an applicant must be possessed of or have a contractual call on gas. Canadian Delhi has been doing, as you know, the development work, and Trans-Canada was subsequently organized. What may happen as they go along and become merged, I cannot at this stage foretell, but in order to bring myself technically within that section, I have a document by which Delhi has sold to Trans-Canada a small piece of land on which there is known to be gas, just to bring us within the section.

THE CHAIRMAN: We will mark the contract as Exhibit 131, or is it a letter?

MR. PORTER: The letter is the contract.

THE CHAIRMAN: That will be Exhibit 131.

LETTER DATED NOVEMBER 15, 1951,
CANADIAN DELHI TO TRANS-CANADA
PIPE LINES MARKED EXHIBIT 131.

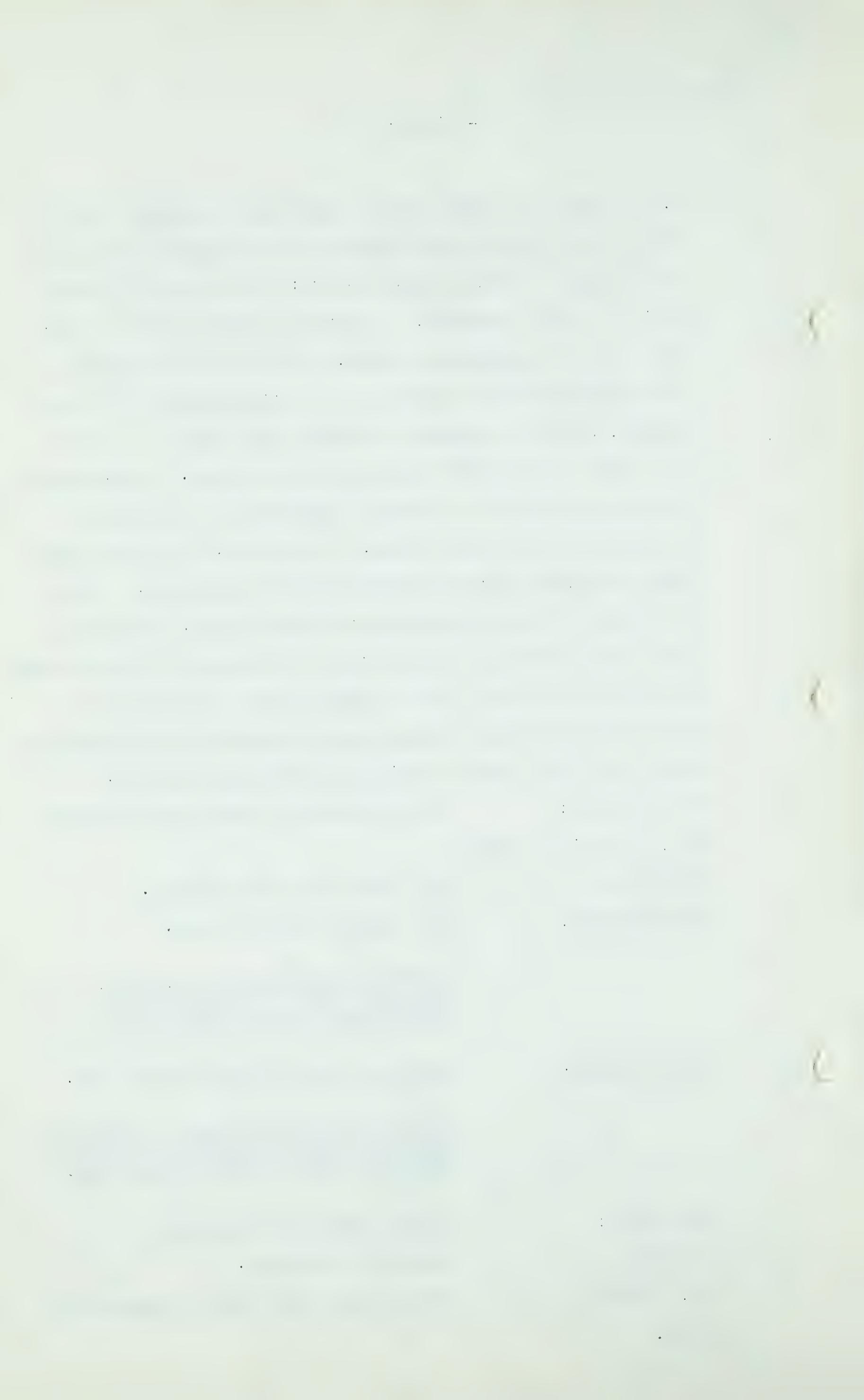
THE CHAIRMAN: And the other will be Exhibit 132.

FILE CONTAINING A NUMBER OF LETTERS
RE SALE OF GAS SUBMITTED ON BEHALF OF
CANADIAN DELHI MARKED EXHIBIT 132.

MR. PORTER: I have copies for everyone.

MR. NOLAN: Thank you verymuch.

MR. PORTER: If anybody would like to accumulate them.



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THE CHAIRMAN: Has any other counsel any other matter to bring up before we close the Hearing?

MR. C. E. SMITH: There is one matter I would like to bring to your attention, sir, and that is about the question of the submission of written arguments and so on.

THE CHAIRMAN: The Board would like to have the counsel for interested parties submit written briefs summing up their case, and we had in mind setting January 15th as the date we would like to have those filed. We would like to have the views of counsel with regard to that date.

MR. McDONALD: That will be satisfactory to me.

MR. S. B. SMITH: It is to me, sir.

MR. NOLAN: Quite satisfactory to me, sir.

MR. STEER: Satisfactory.

MR. MAHAFFY: It is to me, sir.

MR. PORTER: It is a little early for me, but I see I am being out-voted.

THE CHAIRMAN: Well, we will leave it at January 15th, 1952.

Gentlemen, we will now close the Hearing.

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The Province of Alberta

IN THE MATTER OF THE PUBLIC
UTILITIES ACT

—and—

IN THE MATTER OF an application to
increase rates by Canadian Western
Natural Gas Company, Limited

G. M. BLACKSTOCK, Esq., K.C. (Chairman)

and

B. V. MASSIE, Esq., K.C. (Commissioner)

Session:

CALGARY, Alberta _____

VOLUME _____

